# 重构类脑神经元网络 R-KFDNN

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**文摘:**

通过人脑的神经系统损伤与修复过程，去构建类脑高维度柔性神经网络系统的受损或数据的局部缺失等的修复过程的复杂性深度学习与训练，来防止高维数据局部缺失而引起维度灾难；受损神经系统(柔性神经网络)存在失忆或存储信息局部丢失时，如何恢复并提取特征信息。信息提取一般存在于高一维度或低一维度的密钥群的生成序列的分配表群去寻找类脑存储的核心数据。而密钥群的生成序列存在于一条隐蔽的时间切线丛中，类脑的切片数据处理在不同层面、不同维度、不同切丛、余切丛上运行。类脑中密钥群可以认为是记忆碎片的分配表；记忆解析具有镜像反射，并伴随局部随机数据缺失，在紧致性压缩的时间切丛中，自由切换于高维度信息场中，解析的钥匙埋在信息中。

**关键词:** 类脑,神经系统损伤与修复,柔性神经网络,密钥群的生成序列,高维度信息场,记忆解析

## 1. 介绍

设计了带参数的单极性和多极性柔性弱非线性聚类函数的一种柔性深度神经网络(KFDNN),并给出了相应的学习算法.和普通的邻域深度神经网络(KDNN)不同, KFDNN不仅能学习连接权,且同时能学习柔性弱非线性聚类函数的参数,因此,它能根据学习样本集,为每一个隐含层和输出层单元产生合适的弱非线性聚类函数形态。柔性神经网络能提高KDNN网络的性能,并能较好解决不同领域中的分类与预测问题。非柔性深度神经网络(KDNN)到柔性深度神经网络(KFDNN)，再从柔性深度神经网络(KFDNN)到类脑神经元网络。类脑重核边界密钥群生成序列超切面与柔性深度神经网络(KFDNN)、类脑神经元网络的关系

### 1.1 柔性神经网络数模

$$\forall K_{DNN}^{n-1}\left(\rho_{\wedge}^{n},\theta^{\lambda}\right)\xrightarrow{k\ Iterations}\exists K_{DNN}^{n-1}\left(\rho_{\wedge}^{m},\theta^{k}\otimes\beta^{k}\right), if\theta\otimes\beta\ ,\rho\ and\ appearing\ weak\ nonlinearity$$

$$S^{m+k-1}\left[\left(\rho^{m}\otimes\theta^{k}\right)^{+}\wedge\left(\rho^{m}\otimes\theta^{k}\right)^{-}\right]\xrightarrow{Left,right\ hemisp\ heres\ (Superball\ ,Hypersp\ here)}\left[S_{left}^{m+k-1}\left(\rho^{m}\otimes\theta^{k}\right)^{+}\right]\wedge\left[S_{right}^{m+k-1}\left(\rho^{m}\otimes\theta^{k}\right)^{-}\right]\qquad(1)$$

### 1. 2 类脑神经元网络分析数模

① 其核心内核为高维度超对称超曲面正态复变高维切丛的左右类脑重核

$${}^{1,2}S_{M_{\partial}}^{\omega(\theta)+1}\sim{}^{1,2}S_{M_{\partial}\ (exp)}^{\omega(\theta)+1}\xrightarrow{\text{左右类脑重核}}\left({}^{+}\Omega_{t^{'}(\theta)}^{S_{\partial M}^{-1}}\wedge{}^{-}\Omega_{t^{'}(\theta)}^{S_{\partial M}^{-1}}\right)\qquad(2)$$

② 将左右类脑重核代入柔性神经网络数模，则

$$S_{左}^{m+k-1}\left({}^{+}\Omega_{t'(\theta)}^{S_{\partial M}^{-1}}\right)\wedge S_{右}^{m+k-1}\left({}^{-}\Omega_{t'(\theta)}^{S_{\partial M}^{-1}}\right)$$

$$\simeq S_{Left}^{m+k-1}\left({}^{+}\Omega_{t'(\theta)}^{S_{\partial M}^{-1}}\left(\rho^{t}\ \otimes\theta^{k}\right)\right)\wedge S_{right}^{m+k-1}\left({}^{-}\Omega_{t'(\beta)}^{S_{\partial M}^{-1}}\left(\rho^{t}\ \otimes\beta^{k}\right)\right)$$

③ 神经元的形成与 $k$ 次迭代的关系与演化

$$if\ \rho\to 1,\theta=2k\pi+\theta_1+\theta_2+\cdots,t\in\forall\sigma,\left(S_{\partial M}^{-1}\right)^{k}\ ,then$$

$$S_{Left}^{m+k-1}\left({}^{+}\Omega_{t'(\theta)}^{\left(S_{\partial M}^{-1}\right)^{k}}\left(\theta^{k}\right)\right)\wedge S_{right}^{m+k-1}\left({}^{-}\Omega_{t'(\beta)}^{\left(S_{\partial M}^{-1}\right)^{k}}\left(\beta^{k}\right)\right)\cong S_{Left,right}^{m+k-1}\left({}^{+}\Omega_{t'(\theta\wedge\beta)}^{S_{\partial M}^{-1}}\left(\theta^{k}\otimes\beta^{k}\right)\right)\quad(3)$$

左右半脑(类脑)运行时的分布延迟执行效果的数模解析；在$\theta^k,\beta^k$在$t'$切线扰动上形成信息场的弱非线性波动；可以通过合并上式来观察其内在规律。

ⅰ. 分析迭代超切面内核，与高维时间切线扰动内核

$$\left[{}^{\pm}S_{\partial M}^{-k}\left(\theta^{k}\ \wedge\beta^{k}\right)\right],\ {}^{\pm}\Omega'\ \left[t(\theta)\wedge t(\beta)\right]_{\partial}^{k}$$

ⅱ. 左右大脑(类脑)的超切内核的时间切线问题

$$\begin{array}{ccccc}
S_{\partial M}^{-k}\left(\theta^{k}\right) & \longrightarrow & \Omega'\ \left[t^{k}(\theta)\right]_{\partial M} & & S_{\partial^2 M}^{-k}\left(\theta^{k}\left(t'\right)\right)\\
\downarrow & & \downarrow & \longrightarrow & \downarrow\\
S_{\partial M}^{+k}\left(\beta^{k}\right) & \longrightarrow & \Omega'\ \left[t^{k}(\beta)\right]_{\partial M} & & S_{\partial^2 M}^{-k}\left(\beta^{k}\left(t'\right)\right)
\end{array}$$

左右大脑(类脑)超重核时间切线扰动结构，称为神经元；即${}_{Left}S_{\partial^2 M}^{-k}\left(\theta^{k}\left(t'\right)\right)$，${}_{right}S_{\partial^2 M}^{-k}\left(\beta^{k}\left(t'\right)\right)$，所以在左、右大脑(类脑)内部神经元具有不同分工，并在时间切线的维度上运行，即信息存储、运算、提取、分析等等。

④ 神经元如何分布左、右大脑(类脑)的脑沟中的结构形态

$${}^{1,2}S_{M_{\partial}\ (exp)}^{\omega(\theta)+1}\left[S_{\partial^2 M}^{-k}\left(\theta^{k}\left(t'\right)\right)\wedge S_{\partial^2 M}^{-k}\left(\beta^{k}\left(t'\right)\right)\right],$$

即沟回引起类脑分布维度+1；并且，神经元分布呈现概率分布的协同操作形态特征。所以，人脑具有善变与创新的原因。

⑤ 人脑局部神经受到损伤的神经系统修复与类脑神经系统类似人神经受损，即存在记忆的局部数据缺失而引发失忆；但不会引起高维信息场的维度灾难；而恢复记忆的引线，也就是神经元之间的时间切线，它链接着各个维度的信息。

$${}^{1,2}S_{M_{\partial}\ (exp)}^{\omega(\theta)+1}\left[\left[S_{\partial^2 M}^{-k}\left(\theta^{k}\left(t'\right)\wedge\theta_{\partial}\ \left(t'\right)\right)\right]\wedge\left[S_{\partial^2 M}^{-k}\left(\beta^{k}\left(t'\right)\wedge\beta_{\partial}\ \left(t'\right)\right)\right]\right],$$

ⅰ. 人脑(类脑)信息数据局部缺失函数分析

$$ {}^{1,2}S_{M_\partial\,(exp)}^{\omega(\theta)+1}\,{}^{\partial}\left({}_{\wedge}\theta_\partial\,(t')\right) \wedge {}^{1,2}S_{M_\partial\,(exp)}^{\omega(\theta)+1}\,{}^{\partial}\left({}_{\wedge}\beta_\partial\,(t')\right) \sim {}^{1,2}S_{M_\partial\,(exp)}^{\omega(\theta)+1}\,{}^{\partial}\left({}_{\wedge}\theta_\partial\,(t') \wedge {}_{\wedge}\beta_\partial\,(t')\right) $$

$$ {}^{1,2}S_{M_\partial\,(exp)}^{\omega(\theta)+1}\,{}^{\partial}\left({}_{\wedge}\theta_\partial\,(t') \wedge {}_{\wedge}\beta_\partial\,(t')\right) \simeq {}^{1,2}S_{M_\partial\,(exp)}^{\omega(\theta)+1}\,{}^{\partial}\left(\theta'_\partial(t')\right), then $$

$$ \exists \left[ {}^{1,2}{}_{\partial M_\partial\,(exp)}^{[\omega(\theta')+1]}\left(\theta'_{\partial^2}(t')\right) \right]_{缺失数据}^{类脑\_降2维度} = \exists \left[ {}^{1,2}{}_{M_\partial^2(exp)}^{[\omega(\theta')+1]}\left(\theta'_{\partial^2}(t')\right) \right] $$

$if\ t' \to -\infty, then$不存在缺失数据而引起全面失忆。

ⅱ. 神经元伴随左、右大脑受损(局部)的结构形态

$$ {}^{1,2}S_{M_\partial\,(exp)}^{\omega(\theta)+1}\left[S_{\partial^2 M}^{-k}\left(\theta^k\,(t')\right) \wedge S_{\partial^2 M}^{-k}\left(\beta^k\,(t')\right)\right] - \left[ {}^{1,2}{}_{M_\partial^2(exp)}^{[\omega(\theta')+1]}\left(\theta'_{\partial^2}(t')\right) \right]_{缺失} $$

$\int \left[ {}^{1,2}{}_{M_\partial\,(exp)}^{[\omega(\theta')+1]}\left(\theta'_\partial(t')\right) \right]_{缺失}$ 从数模角度进行修复数据。

ⅲ. 神经元(左、右大脑(类脑))修复局部受损的数据特征

$$ \int {}^{1,2}S_{M_\partial\,(exp)}^{\omega(\theta)+1}\left[S_{\partial M}^{-k}\left(\theta^k\,(t')\right) \wedge S_{\partial M}^{-k}\left(\beta^k\,(t')\right)\right] + \int \left[ {}^{1,2}{}_{M_\partial\,(exp)}^{[\omega(\theta')+1]}\left(\theta'_\partial(t')\right) \right]_{缺失} $$

$$ = \sum {}^{1,2}S_{M_\partial\,(exp)}^{\omega(\theta)+1}\left[S_{\partial M}^{-k}\left(\theta^k\,(t') \oplus \theta'_\partial(t')\right) \wedge S_{\partial M}^{-k}\left(\beta^k\,(t') \oplus \theta'_\partial(t')\right)\right] $$

$$ {}^{1,2}S_{M_\partial\,(exp)}^{\omega(\theta)+1}\left[S_{\partial^2 M}^{-k}\left(\theta^k\,(t')\right) \wedge S_{\partial^2 M}^{-k}\left(\beta^k\,(t')\right)\right] $$

$$ = \sum {}^{1,2}S_{M_\partial\,(ex\square)}^{\omega(\theta)+1}\left[S_{\partial M}^{-k}\left(\theta^k\,(t') \oplus \theta'_\partial(t')\right) \wedge S_{\partial M}^{-k}\left(\beta^k\,(t') \oplus \theta'_\partial(t')\right)\right] \quad (4) $$

所以，人脑(类脑)受损的修复，一般在时间切角上分布与获得，即数据的降维与升维的关系，同时存在偏微分与积分(局部)的关系$\sum \theta'_\partial(t')$

⑥ 人脑左、右脑局部神经修复形态是不同的，请观察下面公式

$$ \begin{cases} {}^{+}\Omega_M^\partial\left(\theta^k\,(t') \oplus \theta'_\partial(t')\right)_{Left} \\ {}^{-}\Omega_M^\partial\left(\beta^k\,(t') \oplus \theta'_\partial(t')\right)_{right} \end{cases} $$

;所以左、右脑可以协同修复局部神经系统，将失忆得到恢复正常

ⅰ. ${}^{\partial}\Omega_M^k\left[\theta^k\,\beta^k\,(t') \oplus \theta'_\partial(t')\right] = \Omega_M^{k+1}\left[\theta\left(\rho(t)\right)\right]$

因此，左、右脑(类脑)协同，可以更好的开发大脑，也有利于脑损伤的修复。

$$ S_{Left}^{m+k-1}\left( {}^{+}\Omega_{t'(\theta\wedge\beta)}^{\left(S_{\partial M}^{-1}\right)^k}\left(\theta^k \wedge \beta^k\right)\right) \cong \Omega_M^{k+1}\left[\theta\left(\rho(t)\right)\right]_{S_{左、右}^{m+k-1}} \quad (5) $$

**1.3、人脑(类脑)感知周围信息场(假定类似 MR 信息)**

$$ \Omega^{k+1}\left[\theta\left(\rho\left(t(MR)\right)\right)\right] = \Omega^{k+1}\left[\theta\left(\rho_t\left(\sum \frac{\delta}{\omega_i} \times log\left|I + R^{-1} \times H_{ij} \times Q_{MR}^{核心能量} \times H_{ji}^H\right|\right)\right)\right], and $$

$$R^{-1}\text{干扰信号},Q_{MR}^{\text{核心能量}}=Matrix\begin{bmatrix}E_{X_E}^{K}\otimes X_K^H & & \\ & E_{X_S}^{K}\otimes X_K^H & \\ & & E_{X_M}^{K}\otimes X_K^H\end{bmatrix}_i^Q \quad (6)$$

① 人脑眼睛感知影像相当于$MR^{H_{ij}\ Q_i\ H_{ji}^H}$的信号在脑空间中如何处理

ⅰ. 人脑(类脑)支撑信息场的能量波动结构方程

$$\Omega^{k+1}\left[\theta\left(\rho\left(t\left(Q_{MR}^{\text{核心能量}}\right)\right)\right)\right]=S_{Left}^{m+k-1}\left(+\Omega_{t'\left(\theta\wedge\beta\left(Q_{MR}^{\text{核心能量}}\right)\right)}^{\left(S_{\partial M}^{-1}\right)^k}\right)\left(\theta^k\wedge\beta^k\left(Q_{MR}^{\text{核心能量}}\right)\right)$$

ⅱ. 能量波动在脑空间曲面上的矢量运动情况($X_K^H$)，所以上式可以写为

$$\Omega^{k+1}\left[\theta\left(\rho_t\left(Matrix\begin{bmatrix}E_{X_E}^{K}\otimes X_K^H & & \\ & E_{X_S}^{K}\otimes X_K^H & \\ & & E_{X_M}^{K}\otimes X_K^H\end{bmatrix}_i^Q\right)\right)\right]$$

$$=S_{Left}^{m+k-1}\left(+\Omega_{t'\left(\theta\wedge\beta\left(Q_{MR}^{\text{核心能量}}\right)\right)}^{\left(S_{\partial M}^{-1}\right)^k}\left(\theta^k\wedge\beta^k\left(Matrix\begin{bmatrix}E_{X_E}^{K}\otimes X_K^H & & \\ & E_{X_S}^{K}\otimes X_K^H & \\ & & E_{X_M}^{K}\otimes X_K^H\end{bmatrix}_i^Q\right)\right)\right) \quad (7)$$

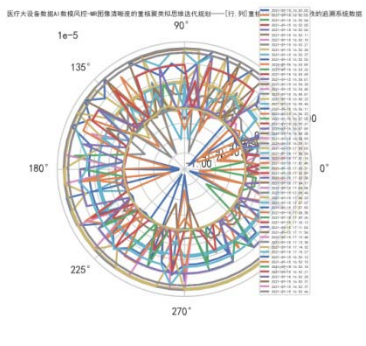
② 从上述内容可知，脑携带特殊能量波，在更高维度上处理各种信号

$$\Omega^{k+1}\left[\theta\left(\rho_t\left(Matrix\begin{bmatrix}E_{X_E}^{K}\otimes X_K^H & & \\ & E_{X_S}^{K}\otimes X_K^H & \\ & & E_{X_M}^{K}\otimes X_K^H\end{bmatrix}_i^Q\right)\right)\right]\rightarrow$$

$$\left(\frac{1}{4}\right)^{n-1}\times\sqrt{2}\left[Sin\left(\frac{\theta_1}{2}+\frac{\pi}{4}+n\cdot\frac{\pi}{4}\right)Cos\left(\sum_{i=2}^{m}\theta_i+\sum_{i=2}^{m}i\cdot\frac{\theta_i}{2}\right)\right.$$

$$\left.-Sin\left(\frac{\beta_1}{2}+\frac{\pi}{4}+n\cdot\frac{\pi}{4}\right)Cos\left(\sum_{i=2}^{m}\beta_i+\sum_{i=2}^{m}i\cdot\frac{\beta_i}{2}\right)\right]_{\theta\wedge\beta(t')} \quad (8)$$

ⅰ. 利用 MR 的图像清晰度函数内核，融入上式右侧结构，来观察更高维度的极坐标图像



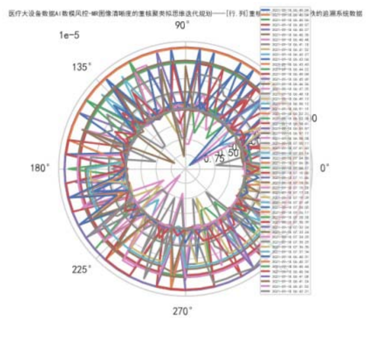


Figure 1. Higher dimensional MR image sharpness kernel function polar image.

③ 在更高维度上感知 MR 信息场的波动规律；$\omega_i$为角速度($\omega_i=TR\otimes TE$)高频波角速度:$\omega_i\left(\delta^{-1}\right)$，

携带图像信息的高频波

$$\omega_i^{-1}(\delta)\times log\left(H_{ij}\ \times Q_{MR}^{核心能量}\times H_{ji}^{H}\right)=\frac{log\left(H_{ij}\ \times Q_{MR}^{核心能量}\times H_{ji}^{H}\right)}{\omega_i\ (\delta)}$$

$$\frac{\theta}{\rho(t)}=\frac{log\left(H_{ij}\ \times Q_{MR}^{核心能量}\times H_{ji}^{H}\right)}{\omega_i\ (\delta)},\qquad \theta\times\omega_i\ (\delta)=\rho(t)\times log\left(H_{ij}\ \times Q_{MR}^{核心能量}\times H_{ji}^{H}\right)$$

$${}'\Omega^{k+1}\left(\theta\cdot\rho_t\ \left(Q_{MR}^{核心能量}\right)\right)\to\frac{1}{(k+1)k(k-1)\dots}\times S_{Left,right}^{m+k-1}\left(\theta_t^{k'}\right)_{\rho\to\delta}$$

$\theta=\dfrac{\rho(t)}{\omega_i\ (\delta)}\times log\left(H_{ij}\ \times Q_{MR}^{核心能量}\times H_{ji}^{H}\right)$代入上式，则

$$\frac{1}{(k+1)k(k-1)\dots}\times S_{Left,right}^{m+k-1}\left(\frac{\rho(t)}{\omega_i\ (\delta)}\times log\left(H_{ij}\ \times Q_{MR}^{核心能量}\times H_{ji}^{H}\right)\right)_{\partial}^{k},and\ if\ m\to 0,t',then$$

$$\left[{}_{Left}S_{\partial^2M}^{-k}\left(\theta^k\left(t'\right)\right)\wedge{}_{right}S_{\partial^2M}^{-k}\left(\beta^k\left(t'\right)\right)\right]$$

$$=\frac{1}{(k+1)k(k-1)\dots}\times S_{Left,right}^{m+k-1}\left(\frac{\rho(t)}{\omega_i\ (\delta)}\times log\left(H_{ij}\ \times Q_{MR}^{核心能量}\times H_{ji}^{H}\right)\right)_{\partial}^{k}\qquad(9)$$

上式(9)为携带图像信息场的高频波降维过程的函数方程。

ⅰ. KFDNN 在神经网络训练、学习时，存在降维过程(梯度下降)

ⅱ. 若$\omega_i\ (\delta)$高频波与类脑(人脑)波存在某种低频率协振动共振时，会使人脑产生不舒服，即

$$\frac{(k+1)k(k-1)\dots}{\omega_i\ \left(\delta^{-1}\right)}\times\left(S^{-k+1}\right),\to\frac{\omega_i\ (\delta)}{(k+1)k(k-1)\dots}\times S_{Left,right}^{k-1}\left(Q_{MR}^{核心能量}\right)$$

$$\frac{\omega_i\ (TR\otimes TE)}{(k+1)k(k-1)\dots}\times S_{Left,right}^{k-1}\left(Q_{MR}^{核心能量}\right)_{\delta}^{H}$$

上面函数结构为携带图像信息的低频协振动共振波形态

$$S_{Left,right}^{-k+1}\left(Q_{MR}^{核心能量}\right)_{\delta}^{H}$$

$$=\frac{\omega_i^{-1}(TR\otimes TE)}{(k+1)k(k-1)\dots}\times\left[Cos\left(\sum_{i=2}^{m}\theta_i\ +\sum_{i=2}^{m}i\cdot\frac{\theta_i}{2}\right)-Cos\left(\sum_{i=2}^{m}\beta_i\ +\sum_{i=2}^{m}i\cdot\frac{\beta_i}{2}\right)\right],$$

$$and\ \delta\to 1,or\ \delta\to-\infty\qquad(10)$$

$$S_{Left,right}^{-k+1}\left(Q_{MR}^{核心能量}\right)_{\delta}^{H}$$

$$=\frac{\left(\frac{1}{4}\right)^n}{(k+1)k(k-1)\dots}\times\left[Sin\left(\theta_i\ +\sum_{i=2}^{m}\theta_i\ +n\cdot\frac{\pi}{4}\right)+Sin\left(\theta_i\ -\sum_{i=2}^{m}\theta_i\ +n\cdot\frac{\pi}{4}\right)\right],$$

$$\frac{(k+1)+k(k-1)+\cdots}{\left(\frac{1}{4}\right)^{n}\times(k+1)k(k-1)\ldots\times\omega_i\ (TR\otimes TE)}$$

$$=\frac{\left[Sin\left(\theta_i\ +\sum_{i=2}^{m}\theta_i\ +n\cdot\frac{\pi}{4}\right)\_Sin\left(\theta_i\ -\sum_{i=2}^{m}\theta_i\ +n\cdot\frac{\pi}{4}\right)\right]}{\left[Cos\left(\sum_{i=2}^{m}\theta_i\ +\sum_{i=2}^{m}i\cdot\frac{\theta_i}{2}\right)-Cos\left(\sum_{i=2}^{m}\beta_i\ +\sum_{i=2}^{m}i\cdot\frac{\beta_i}{2}\right)\right]}$$

$$\frac{(k+1)+k(k-1)+\cdots}{\omega_i\ (TR\otimes TE)}\simeq\frac{\left[Sin\left(\theta_i\ +\sum_{i=2}^{m}\theta_i\ +n\cdot\frac{\pi}{4}\right)+Sin\left(\theta_i\ -\sum_{i=2}^{m}\theta_i\ +n\cdot\frac{\pi}{4}\right)\right]}{\left[Cos\left(\sum_{i=2}^{m}\theta_i\ +\sum_{i=2}^{m}i\cdot\frac{\theta_i}{2}\right)-Cos\left(\sum_{i=2}^{m}\beta_i\ +\sum_{i=2}^{m}i\cdot\frac{\beta_i}{2}\right)\right]}$$

$$\frac{1}{\omega_i\ (TR\otimes TE)}\xrightarrow{约化}\frac{\left[Sin\left(\theta_i\ +\sum_{i=2}^{m}\theta_i\ +n\cdot\frac{\pi}{4}\right)+Sin\left(\theta_i\ -\sum_{i=2}^{m}\theta_i\ +n\cdot\frac{\pi}{4}\right)\right]}{\lambda_i\left[Cos(\theta_i\ +\sum_{i=2}^{m}\theta_i\ )-Sin\left(\theta_i\ -\sum_{i=2}^{m}\theta_i\ +n\cdot\frac{\pi}{4}\right)\right]}\times tg\left(\sum\theta_i\right)$$

$$\frac{1}{\omega_i\ (TR\otimes TE)}=ctg\left(\sum_{i=2}^{m}i\cdot\frac{\theta_i}{2}\right),\therefore$$

$$S_{Left,right}^{-k+1}\left(Q_{MR}^{核心能量}\right)_{\delta}^{H}=ctg\left(\sum_{i=2}^{m}i\cdot\frac{\theta_i}{2}\right)_{E_X}\qquad(11)$$

下图(公式(11))为携带图像信息的低频协振动的约化共振波形态方程的三维图像的类脑(人脑左、右脑)$S_{Left,right}^{-k+1}\left(Q_{MR}^{核心能量}\right)_{\delta}^{H}$

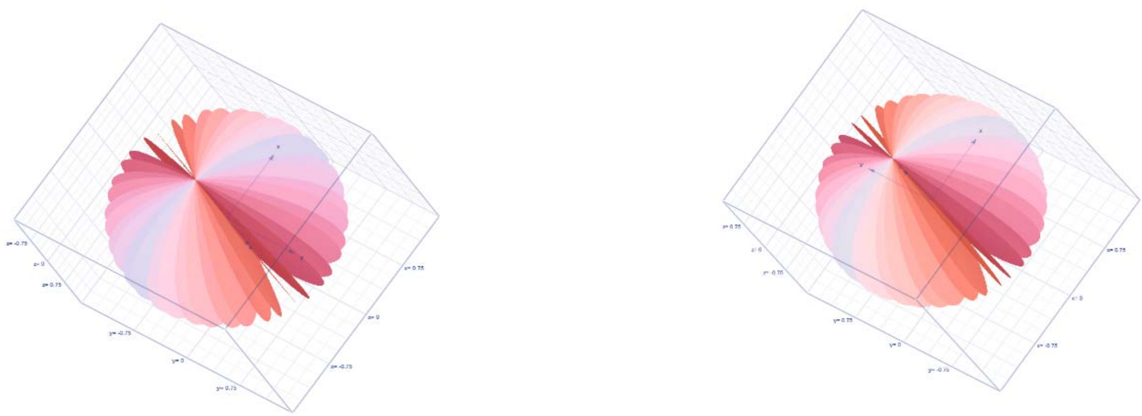


Figure 2. Three dimensional image of reduced resonance wave morphological equation of brain like with image information.

iii. 左、右脑(类脑)内核协同与携带信息约化波动形态的拟合方程的变换

$$+\Omega_{t'(\theta\wedge\beta)}^{\left(S_{\partial M}^{-1}\right)^{k}}(\theta^{k}\wedge\beta^{k})\sim\sum_{k\geq3}^{m}S_{Left,right}^{-k+1}\left(Q_{MR}^{核心能量}\right)_{\delta}^{H},if\ S_{Left,right}^{-k+1}\subset ctg\left(\sum_{i=2}^{m}i\cdot\frac{\theta_i}{2}\right)_{E_X}\qquad(12)$$

每一个约化$S^{-1}$片上存储着大量信息，包括类似 MR 图像信息碎片等，从整体看类脑(人脑)存储的海量信息的高维度数据，并存在提取信息的密钥群高 1 维度信息，这叫高维度信息的分配表群，相

当于密钥群的生成序列，所以将(5)式化简为

$$S^{m+k-1}_{Left,right}\left(\sum_{k\geq3}^{m} S^{-k+1}_{Left,right}\left(Q_{MR}^{核心能量}\right)^{H}_{\delta}\right)\sim S^{m+k-1}_{Left,right}\left(\sum_{k\geq3}^{m} ctg^{s}\left(\sum_{i=2}^{m} i\cdot\frac{\theta_i}{2}\right)^{Q_{MR}}_{E_{X(t')}}\right), and\ s表示维度$$

$$S^{m+k-1}_{Left,right}\left(\sum_{k\geq3}^{m} S^{-k+1}_{Left,right}\left(Q_{MR}^{核心能量}\right)^{H}_{\delta}\right)\sim S^{m+k-1}_{Left,right}\left(\sum_{k\geq3}^{m} ctg^{s}\left(\sum_{\rho=2}^{m} \rho_{\theta}\cdot\frac{\theta_{\rho(t')}}{2}\right)^{Q_{MR}}_{E_{X(t')}}\right), and$$

$s\geq 3$ 表示维度,$\rho(t')$为极坐标的极径,$t'$为时间切线 (13)

④ 密钥群生成序列$\left({}^{+}\Omega^{S^{-1}_{\partial M}}_{t'(\theta)}\wedge{}^{-}\Omega^{S^{-1}_{\partial M}}_{t'(\theta)}\right)$到左、右脑(类脑)内核协同与携带信息约化波动拟合变换(公式(13)),每一片约化$S^{-1}$上存储大量信息(如 MR 图像信息),而提取信息需要密钥群的生成序列,即分配表群(引导), 可能存在余切的时间线上$\rho_{\theta}\ (t')$。

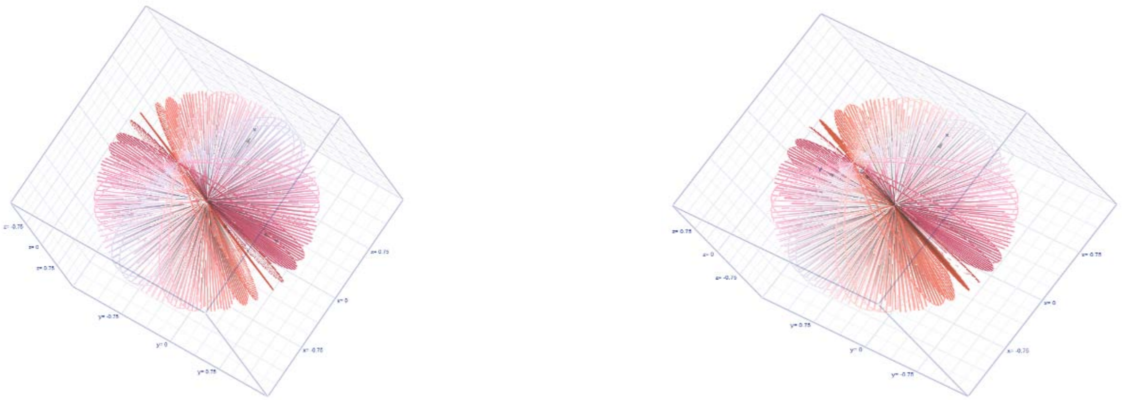


Figure 3. The generation sequence of the key group of each piece of $S^{-1}$ information has a cotangent time line $\rho_{\theta}\ (t')$.

ⅰ. 在高维信息场中，存在一条隐蔽的时间线$\rho_{\theta}\ (t')$，即余切丛，它穿越了高维与较低维类脑超切面与$S_k^{-1}$切片丛，从而可以发现类脑与人脑可能都存在密钥群的生成序列，以及$\rho_{\theta}\ (t')$余切丛、$S_k^{-1}$切片丛。

$$S^{m+k-1}_{Left,right}\left[\sum_{k\geq3}^{m} ctg^{s}\left(\sum_{\rho=2}^{m}\rho_{\theta}\left(Matrix\begin{bmatrix}E^{K}_{X_E}\otimes X^{H}_{K} & & \\ & E^{K}_{X_S}\otimes X^{H}_{K} & \\ & & E^{K}_{X_M}\otimes X^{H}_{K}\end{bmatrix}^{Q}_{i}\right)\cdot\frac{\theta_{\rho(t')}}{2}\right)^{Q_{MR}}_{E_{X(t')}}\right]\sim S^{m+k-1}_{Left,right}\left(\sum_{k\geq3}^{m} S^{-k+1}_{Left,right}\left(Q_{MR}^{核心能量}\right)^{H}_{\delta}\right), and\ s表示维度 \quad (14)$$

ⅱ. 而$Q_{MR}^{核心能量}$是维持类脑(人脑)记忆(信息存储介质)的核心能量[即记忆悬浮维持能量]，所以$S_k^{-1}\left(Q_{MR}^{核心能量}\right)$切丛片(携带能量)，$\rho_{\theta}\left(t'\left(Q_{MR}^{核心能量}\right)\right)$余切丛(携带能量)。

iii. $S_k^{-1}\left(Q_{MR}^{核心能量}\right)$切片丛上携带大量可识别的信息数据，它适用于类脑(人脑)，并通过余切丛$\rho_\theta\ (t')$的密钥群生成序列来提取有用信息数据，即

$$S_k^{-1}\left(\rho_\theta\ (t')\right)\xrightarrow{提取数据}\left[{}^{+}\Omega_{t'(\theta)}^{S_{\partial M}^{-1}}\wedge{}^{-}\Omega_{t'(\theta)}^{S_{\partial M}^{-1}}\right] \tag{15}$$

，而${}^{+}\Omega_{t'(\theta)}^{S_{\partial M}^{-1}}\left(S_k^{-1}\left(\rho_\theta\ (t')\right)\right)\wedge{}^{-}\Omega_{t'(\theta)}^{S_{\partial M}^{-1}}\left(S_k^{-1}\left(\rho_\theta\ (t')\right)\right)$为由密钥群生成序列的提取信息数据函数。

## 1.4、重构类脑神经元网络 R-KFDNN

① R-KFDNN 神经元结构函数：${}^{+}\Omega_{t'(\theta)}^{S_{\partial M}^{-1}}\left(S_k^{-1}\left(\rho_\theta\ (t')\right)\right)\wedge{}^{-}\Omega_{t'(\theta)}^{S_{\partial M}^{-1}}\left(S_k^{-1}\left(\rho_\theta\ (t')\right)\right)$

R-KFDNN 神经元链接的神经网：$\sum_{k\geq3}^{m} ctg^s\left(\sum_{\rho=2}^{m}\rho_\theta\ \cdot\frac{\theta_{\rho(t')}}{2}\right)_{E_{X(t')}}^{Q_{MR}}$

i. 所以重构类脑神经网络的函数结构体：

$${}^{+}\Omega_{t'(\theta)}^{S_{\partial M}^{-1}}\left(S_k^{-1}\left(\sum_{k\geq3}^{m} ctg^s\left(\sum_{\rho=2}^{m}\rho_\theta\ \cdot\frac{\theta_{\rho(t')}}{2}\right)^{Q_E}\right)\right)\wedge{}^{-}\Omega_{t'(\theta)}^{S_{\partial M}^{-1}}\left(S_k^{-1}\left(\sum_{k\geq3}^{m} ctg^s\left(\sum_{\rho=2}^{m}\rho_\theta\ \cdot\frac{\theta_{\rho(t')}}{2}\right)^{Q_E}\right)\right)$$

上式为左、右类脑(人脑)局部重构类脑神经网络的函数体。下式为重构类脑(人脑)整体神经网络的函数体的复杂高维度方程 R-KFDNN

$$\begin{aligned}S_{Left,right}^{m+k-1}\left[{}^{+\wedge-}\Omega_{t'(\theta)}^{S_{\partial M}^{-1}}\left(S_k^{-1}\left(\sum_{k\geq3}^{m} ctg^s\left(\sum_{\rho=2}^{m}\rho_\theta\ \cdot\frac{\theta_{\rho(t')}}{2}\right)^{Q_E}\right)\right)\right]&=\Omega^{k+1}\left[\theta\left(\rho(t)\right)\right]_{S_{Left,right}^{m+k-1}}, and\ Q_E\\&=Matrix\begin{bmatrix}E_{X_E}^{K}\otimes X_K^H&&\\&E_{X_S}^{K}\otimes X_K^H&\\&&E_{X_M}^{K}\otimes X_K^H\end{bmatrix}_i^Q 为核心能量\end{aligned} \tag{16}$$

ii. 建立特殊柔性神经网络与重构类脑神经网络之间紧致性关联，来解决 AI 中复杂性问题 KFDNN 深度神经网络的隐含层，相当于类脑 R-KFDNN 的密钥群生成序列的切片丛$S_k^{-1}$，即

${}^{+}\Omega_{t'(\theta)}^{S_{\partial M}^{-1}}\left(S_k^{-1}\left(\rho_\theta\ (t')\right)\right)\wedge{}^{-}\Omega_{t'(\theta)}^{S_{\partial M}^{-1}}\left(S_k^{-1}\left(\rho_\theta\ (t')\right)\right)$为相当于 KFDNN 的隐含层

iii. KFDNN 的拟思维迭代规划比 R-KFDNN 在 AI 数模上较为简单实用。而 KFDNN 使用深度统计的 3 套核心公式：

$$P^{(1)}_{(A_i,A_j)}=\left(\frac{1}{4}\right)^n\times\left[Sin\left(A_1\ +\sum_{i=2}^{m}A_i\ \ +n\cdot\frac{\pi}{4}\right)+Sin\left(A_1\ -\sum_{i=2}^{m}A_i\ \ +n\cdot\frac{\pi}{4}\right)\right]_{P^*_{i(x,y)}} \tag{17}$$

$$\begin{aligned}P^{(2)}_{(A,B)}=\left(\frac{1}{4}\right)^{n-1}\\ &\times\sqrt{2}\left[Sin\left(\frac{A_1}{2}+\frac{\pi}{4}+n\cdot\frac{\pi}{4}\right)Cos\left(\sum_{i=2}^{m}A_i\ \ +\sum_{i=2}^{m}i\cdot\frac{A_i}{2}\right)\right.\\ &\left.-Sin\left(\frac{B_1}{2}+\frac{\pi}{4}+n\cdot\frac{\pi}{4}\right)Cos\left(\sum_{i=2}^{m}B_i\ \ +\sum_{i=2}^{m}i\cdot\frac{B_i}{2}\right)\right]_{P^*_{ij(x_i,y_j)}}\end{aligned} \tag{18}$$

$$\begin{aligned}&[\mathrm{Tanh}\times\mathrm{Ctanh}]^{\nabla}\\ &=\frac{\left[\frac{k^2\sigma_1}{\sqrt[3]{\frac{\pi^2}{4}}}\times e_{ij}^{\frac{1}{8}\left[\left(X_i\ -i\bar{X}\right)_i-\frac{\mu}{\sigma}\right]^3}{}_{\theta^{\frac{+2}{\sqrt{\pi}}\left(\bar{X}_{ij}X_{i+1,j+1}\right)}}-\frac{k^2\sigma_2}{\sqrt[3]{\pi^2}}\times e_{ij}^{-\frac{1}{8}\left[\left(X_i\ +i\bar{X}\right)_j-\frac{\mu}{\sigma}\right]^3}{}_{\theta^{\frac{+2}{\sqrt{\pi}}\left(\bar{X}_{i+1,j+1}X_{ij}\right)}}\right]}{\left[\frac{k^2\sigma_3}{\sqrt[3]{\pi^2}}\times e_{ij}^{\frac{1}{8}\left[\left(X_i\ -i\bar{X}\right)_i-\frac{\mu}{\sigma}\right]^3}{}_{\theta^{\frac{+2}{\sqrt{\pi}}\left(\bar{X}_{ij}X_{i+1,j+1}\right)}}+\frac{k^2\sigma_4}{\sqrt[3]{\frac{\pi^2}{4}}}\times e_{ij}^{-\frac{1}{8}\left[\left(X_i\ +i\bar{X}\right)_j-\frac{\mu}{\sigma}\right]^3}{}_{\theta^{\frac{+2}{\sqrt{\pi}}\left(\bar{X}_{i+1,j+1}X_{ij}\right)}}\right]}\\ &\otimes\frac{\left[\frac{k^2\sigma_5}{\sqrt[3]{\pi^2}}\times e_{ij}^{\frac{1}{8}\left[\left(X_i\ -i\bar{X}\right)_i-\frac{\mu}{\sigma}\right]^3}{}_{\theta^{\frac{-2}{\sqrt{\pi}}\left(X_{ij}\bar{X}_{i+1,j+1}\right)}}+\frac{k^2\sigma_6}{\sqrt[3]{\frac{\pi^2}{4}}}\times e_{ij}^{-\frac{1}{8}\left[\left(X_i\ +i\bar{X}\right)_j-\frac{\mu}{\sigma}\right]^3}{}_{\theta^{\frac{-2}{\sqrt{\pi}}\left(\bar{X}_{ij}X_{i+1,j+1}\right)}}\right]}{\left[\frac{k^2\sigma_7}{\sqrt[3]{\frac{\pi^2}{4}}}\times e_{ij}^{\frac{1}{8}\left[\left(X_i\ -i\bar{X}\right)_i-\frac{\mu}{\sigma}\right]^3}{}_{\theta^{\frac{-2}{\sqrt{\pi}}\left(X_{ij}\bar{X}_{i+1,j+1}\right)}}-\frac{k^2\sigma_8}{\sqrt[3]{\pi^2}}\times e_{ij}^{-\frac{1}{8}\left[\left(X_i\ +i\bar{X}\right)_j-\frac{\mu}{\sigma}\right]^3}{}_{\theta^{\frac{-2}{\sqrt{\pi}}\left(\bar{X}_{ij}X_{i+1,j+1}\right)}}\right]}\\ &,and\sigma\left(\pi,\frac{\pi}{4},\frac{\pi}{2},2\pi\right)^{-\mathrm{T}^2}\to\sigma\left(\pi,\frac{\pi}{4},\frac{\pi}{2},2\pi\right)^{\mathrm{T}^2},\end{aligned} \tag{19}$$

ⅳ. KFDNN 再通过 KNN 神经网络训练、学习，大大提高了 AI 数模的风控精度。

②而重构类脑神经元网络 R-KFDDN 远比上述的 KFDNN 难得多，其数模本身具有高维度空间的非线性扰动，对信息场数据处理在不同层面、不同维度、不同切丛、余切丛上运行。对数据提取需要密钥群，在数据导引上存在一条隐蔽的时间切线，类似数据分配表，但比它更加复杂。

ⅰ. 密钥群： ${}^{+}\Omega^{S^{-1}_{\partial M}}_{t^{'}(\theta)}\left(S_k^{-1}\left(\rho_\theta\ (t')\right)\right)\wedge{}^{-}\Omega^{S^{-1}_{\partial M}}_{t^{'}(\theta)}\left(S_k^{-1}\left(\rho_\theta\ (t')\right)\right)$

类脑高维形态： $\Omega^{k+1}\left[\theta\left(\rho(t)\right)\right]_{S^{m+k-1}_{Left,right}}$，不同维度

不同层面形态： $S^{m+k-1}_{Left,right}\left(\sum_{k\geq3}^{m}ctg^s\left(\sum_{\rho=2}^{m}\rho_\theta\ \cdot\frac{\theta_{\rho(t')}}{2}\right)^{Q_{MR}}_{E_{X(t')}}\right)$

不同切丛形态(切片丛): $S_k^{-1}\left(\rho_\theta\ (t')\right)^{Q_E}$

余切丛形态: $\rho_\theta\ \left(t'\left(Q_{MR}^{核心能量}\right)\right)$

数据导引隐蔽的时间切线: $\rho_\theta\ \left(t'(Q_E\ )\right) \to \sum_{k\geq3}^m ctg^s\left(\sum_{\rho=2}^m \rho_\theta\ \cdot \frac{\theta_{\rho(t')}}{2}\right)_{E_{X(t')}}^{Q_{MR}}$, 类似数据分配表, 但更加复杂。

ⅱ. 密钥群分布在切片丛上, 即 ${}^{+}\Omega_{t'(\theta)}^{S_{\partial M}^{-1}}(S_k^{-1}) \wedge {}^{-}\Omega_{t'(\theta)}^{S_{\partial M}^{-1}}(S_k^{-1}), and\ S_k^{-1}$表示切片丛。而且

$$^{+\wedge-}\Omega_{t'(\theta)}^{S_{\partial M}^{-1}}\left(S_k^{-1}\left(\rho_\theta\ (t')\right)\right) \to \rho_\theta\ (t') \subset \sum_{k\geq3}^m ctg^s\left(\sum_{\rho=2}^m \rho\cdot\frac{\theta_{\rho(t')}}{2}\right)_{E_{X(t')}}^{Q_E}$$

即密钥群最终应该分布在$\sum_{k\geq3}^m ctg^s\left(\sum_{\rho=2}^m \rho\cdot\frac{\theta_{\rho(t')}}{2}\right)_{E_{X(t')}}^{Q_E}$的$\rho_\theta\ (t')$时间切线弧上。

ⅲ. 有时在类脑(人脑)中密钥群可能称为记忆碎片分配表。

③脑的记忆解析与 AI 数模分析

$$\omega^s\ (\lambda^i) \to {}^{+\wedge-}\Omega_{t'(\theta)}^{S_{\partial M}^{-1}}\left(S_k^{-1}\left(\rho_\theta\ (t')\right)\right), and\ \lambda^i 为类脑波频率, \omega为角速度, s表示维度$$

$$\left[{}^{+\wedge-}\Omega_{t'(\theta)}^{S_{\partial M}^{-1}}\right]_{\rho_\theta}^T \sim\Omega^{s+1}\left(\frac{\omega^s\ (\lambda^i)}{S_k^{-1}\left(\rho_\theta\ (t')\right)}\right)$$

ⅰ. 记忆解析入门——反射镜像(伴随局部随机数据缺失)

$$\begin{bmatrix}\omega^s\ (\lambda^i) & & S_k^{-1}\left(\rho_\theta\ (t')\right)\\ & {}^s\Omega^T\ (\omega, S_k^{-1}) & \\ \rho_\theta\ (t') & & Q_E\end{bmatrix}\sim\left[{}^{+\wedge-}\Omega_{t'(\theta)}^{S_{\partial M}^{-1}}\right]_{\rho_\theta}^T$$

$$\begin{bmatrix}\omega_1 & & & & \\ S_1^{-1} & \omega_2 & & \cdots & \Omega_{Q_E}^{s+1}(\lambda^i)_\omega \\ & S_2^{-1} & \cdots & & \\ & \vdots & & \ddots & \vdots \\ \rho_{\theta_1} & & & & \\ & \rho_{\theta_2} & & \cdots & \\ & & \cdots & & \end{bmatrix}\frac{\text{反射镜像}}{\text{局部随机数据缺失}}\begin{bmatrix} & & & \cdots & & \\ & & & \cdots & \rho_{\theta_2}^* & \\ & & \cdots & & & \rho_{\theta_1}^* \\ & \vdots & & \ddots & \vdots & \\ & \Omega_{Q_E}^{s+1}(\lambda^i)_\omega & & \cdots & S_2^{-1} & \\ & & & \cdots & \omega_2^* & S_1^{-1} \\ & & \cdots & & & \omega_1^*\end{bmatrix}$$

(20)

ⅱ. 当 ${}^{+}\Omega_{Q_E}^{s+1}(\lambda^i)_\omega \vee {}^{-}\Omega_{Q_E}^{s+1}(\lambda_*^i)_\omega \cong I^{s+1}(\lambda_*^i)_\omega, and\ s表示维度, \omega为振幅$, $\lambda^i\ or\ \lambda_*^i$表示频率; 所以记忆解

析关键变量为$I^{s+1}\left(\lambda_*^i\right)_\omega$，通过高维度信息场镜像反射来获得类脑（人脑）信息数据

$$\left[{}^{+\wedge-}\Omega_{t'(\theta)}^{S_{\partial M}^{-1}}\right]_{\rho_\theta}^T \to \left[{}^{+}\Omega_{Q_E}^{s+1}\left(\lambda^i\right)_\omega \vee {}^{-}\Omega_{Q_E}^{s+1}\left(\lambda_*^i\right)_\omega\right]$$

ⅲ. 解析入门埋在信息中，而且在更高维度上运行；记忆解析需要高速$\omega^s\left(\lambda^i\right)$，且为线性的。

记忆解析：$I_{pass}^{s+1}\left(\lambda_*^i\right)_\omega : \left[{}^{+}\Omega_{Q_E}^{s+1}\left(\lambda^i\right)_\omega \vee {}^{-}\Omega_{Q_E}^{s+1}\left(\lambda_*^i\right)_\omega\right]_{\rho_\theta(t')}^{S_k^{-1}}$

$$\begin{array}{l} I_{pass}^{s+1}\left(\lambda_*^i\right)_\omega : \left[{}^{+}\Omega_{Q_E}^{s+1}\left(\lambda^i\right)_\omega \vee {}^{-}\Omega_{Q_E}^{s+1}\left(\lambda_*^i\right)_\omega\right]_{\rho_\theta(t')}^{S_k^{-1}} \\ \cdots \\ I_{pass}^{3}\left(\lambda_*^i\right)_\omega : \left[{}^{+}\Omega_{Q_E}^{3}\left(\lambda^i\right)_\omega \vee {}^{-}\Omega_{Q_E}^{3}\left(\lambda_*^i\right)_\omega\right]_{\rho_\theta(t')}^{S_k^{-1}} \\ I_{pass}^{2}\left(\lambda_*^i\right)_\omega : \left[{}^{+}\Omega_{Q_E}^{2}\left(\lambda^i\right)_\omega \vee {}^{-}\Omega_{Q_E}^{2}\left(\lambda_*^i\right)_\omega\right]_{\rho_\theta(t')}^{S_k^{-1}} \end{array} \tag{21}$$

$\rho_\theta(t')$的紧致性压缩，即同时存在时间$t'$的压缩结构，而$I_{pass}^{s+1}\left(\lambda_*^i\right)_\omega$将自由切换于高维信息场中。所以，记忆解析入门的钥匙就在$I_{pass}^{s+1}\left(\lambda_*^i\right)_{\omega(t')}$中，就是一种特殊频率的线性波结构形态。

**2. 携带密钥群生成序列左右脑（类脑）内核，在更高维度幂函数的高维度复变弦线丛势生成序列形成高维线圈；每片约化$S_{\partial M}^{-1}$上密钥群的生成序列**

2.1 高一维、低一维切丛核势密钥群生成序列的对偶密钥群核势正交滑动模态；对偶密钥群核势生成序列位于时间锥主轴线上超曲面，并随之动态、弱非线性旋转而产生密钥群核势[凸核]生成序列${}_{left}^{+}\Omega\left(S_{\lambda(t,\theta)}^{-1}\right) \wedge {}_{right}^{-}\Omega\left(S_{\lambda(t,\theta)}^{-1}\right)$

$$\rightsquigarrow \left[\sin\left(\sum_{i=2}^{m} \rho_\theta^i \cdot \frac{\theta_{\rho(t')}^i}{2} \wedge \sum_{j=2}^{m} \rho_\beta^i \cdot \frac{\beta_{\rho(t')}^i}{2}\right) \otimes \cos\left(\sum_{j=2}^{p} \rho^i{}_{*\theta} \cdot \frac{\theta_{\rho_*(t')}^i}{2} \wedge \sum_{i=2}^{q} \rho^i{}_{*\beta} \cdot \frac{\beta_{\rho_*(t')}^i}{2}\right)\right]^{\omega(t)^{i\cdot\omega(\theta)}}$$

①${}_{left}^{+}\Omega\left(S_{\lambda(t,\theta)}^{-1}\right) \wedge {}_{right}^{-}\Omega\left(S_{\lambda(t,\theta)}^{-1}\right)$为类脑（脑）左、右脑分离，且每片约化的记忆悬浮

$$\begin{cases} {}_{left}^{+}\Omega\left(S_{\lambda(t,\theta)}^{-1}\right) \rightsquigarrow \left[\sin^2\left(\sum_{i=2}^{m} \theta^i \cdot \frac{\theta_{\rho(t')}^i}{2}\right) + \cos^2\left(\sum_{j=2}^{m} \theta_*^j \cdot \frac{\theta_{\rho(t')}^j}{2}\right)\right]^{\omega(t)^{i\cdot\omega(\theta)}} \\ {}_{right}^{-}\Omega\left(S_{\lambda(t,\theta)}^{-1}\right) \rightsquigarrow \left[\sin^2\left(\sum_{i=2}^{m} \beta^i \cdot \frac{\beta_{\rho(t')}^i}{2}\right) + \cos^2\left(\sum_{j=2}^{m} \beta_*^j \cdot \frac{\beta_{\rho(t')}^j}{2}\right)\right]^{\omega(t)^{i\cdot\omega(\theta)}} \end{cases}$$

ⅰ. 若$H_{(f\otimes F)}$调和映照稳定、平坦时，时间切点$t_i^\nabla$，其核势$a_{ii\uparrow\downarrow}^{(kk)}$曲面相切、时间线法线向量相交；而$\mathcal{N}_1$旋转缠绕$\mathcal{N}_0$主轴的复变函数对交叉域进行非线性跨域、生成序列周期$a_{\omega=i2\pi}^{(nn)\uparrow\downarrow}$；而隐蔽时间线与高维生成

序列的势形成卷积势的空间结构。

$$\langle {}^{\langle\theta,\beta\rangle}\Omega^{i\omega}_{T^2\begin{vmatrix}0&1\\1&0\end{vmatrix}\wedge\rho_{\langle\theta,\beta\rangle}(t)}, {}^{\langle\theta,\beta\rangle}\Omega^{i\omega-1}_{T^2\begin{vmatrix}1&0\\0&1\end{vmatrix}\wedge\rho_{\langle\theta,\beta\rangle}(t)}\rangle\cdot a^{\uparrow\downarrow}_{nn}$$

$$\rightsquigarrow \langle Sin\left(T^{-1}\begin{vmatrix}0&1\\1&0\end{vmatrix}\cdot\sum_{s=3}^{m}\theta^{s}\cdot\frac{\theta^{s-1}_{\rho(t)}}{2}\right), Cos\left(T^{-1}\begin{vmatrix}1&0\\0&1\end{vmatrix}\cdot\sum_{s=3}^{m}\beta^{s}_{*}\cdot\frac{\beta^{s-1}_{\rho(t)}}{2}\right)\rangle^{\langle i\omega,i\omega-1\rangle}\cdot a^{\uparrow\downarrow}_{mm} \quad (22)$$

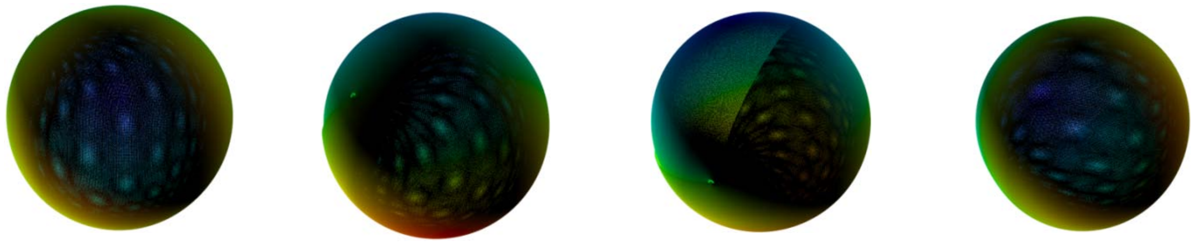


Fig04.RLLM 增强思维能力搜索增强微调和收缩参数群尺度_$H_{\langle f\otimes F\rangle}$调和映照稳定、平坦时，时间切点$t_i^{\nabla}$，其核势$a^{(kk)}_{ii\uparrow\downarrow}$曲面相切、时间线法线向量相交；而$\mathcal{N}_1$旋转缠绕$\mathcal{N}_0$主轴的复变函数对交叉域进行非线性跨域、生成序列周期$a^{(nn)\uparrow\downarrow}_{\omega=i2\pi}$；而隐蔽时间线与高维生成序列的势形成卷积势的空间结构

$$P^{\partial M^{s}_{\Omega\wedge}}_{H^{*}_{\langle f\otimes F\rangle}}\left(\Omega^{\langle i\omega,i\omega-1\rangle}_{Q_E^{2n}\left(\rho_{\langle\theta,\beta\rangle}(t')\right)_t^{\pm\frac{\pi}{2}+nk\pi}}\cdot a^{\uparrow\downarrow}_{mm}\right)$$

$$\rightsquigarrow \langle Sin^{2n}\left(T^{-\perp}\begin{vmatrix}0&1\\1&0\end{vmatrix}\cdot\sum_{s=3}^{m}\rho^{s}_{\theta}\cdot\frac{\theta^{s-1}_{\rho(t)}}{2}\right)\wedge Cos^{2n}\left(T^{-\perp}\begin{vmatrix}1&0\\0&1\end{vmatrix}\cdot\sum_{s=3}^{m}\rho^{s}_{*\beta}\cdot\frac{\beta^{s-1}_{\rho_*(t)}}{2}\right)\rangle^{\langle i\omega,i\omega-1\rangle}\cdot a^{\uparrow\downarrow}_{mm} \quad (23)$$

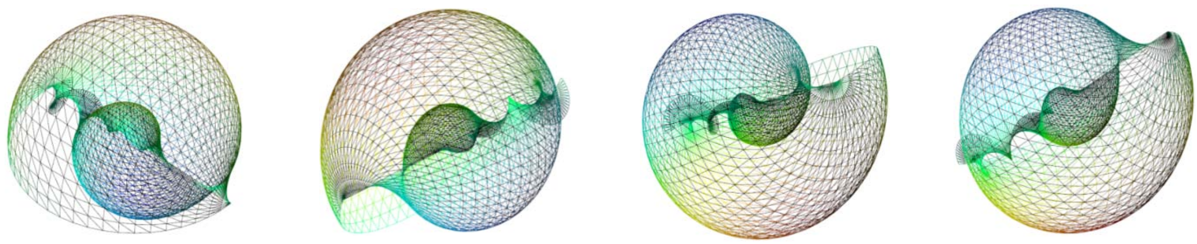


Fig05.RLLM 增强思维能力搜索增强微调和收缩参数群尺度_$H_{\langle f\otimes F\rangle}$调和映照稳定、平坦时，时间切点$t_i^{\nabla}$，其核势$a^{(kk)}_{ii\uparrow\downarrow}$曲面相切、时间线法线向量相交；而$\mathcal{N}_1$旋转缠绕$\mathcal{N}_0$主轴的复变函数对交叉域进行非线性跨域、生成序列周期$a^{(nn)\uparrow\downarrow}_{\omega=i2\pi}$；而隐蔽时间线与高维生成序列的势形成卷积势的空间结构

ii.类脑(脑) 眼睛感知影像相当于$MR^{H_{ij}\ Q_i\ H^H_{ji}}$，投影于对偶密钥群高一维密钥表$\Omega^{K+1}$

$$\langle cos\left(T^{-1}\begin{vmatrix}1&0\\0&1\end{vmatrix}\cdot\sum_{s=3}^{m}\beta^{s}\cdot\frac{\beta^{s-1}_{\rho(t)}}{2}\right)\rangle^{\langle i\omega,i\omega-1\rangle}, and\ s=2,\omega-1,\omega=1.5$$

$$\Omega^{K+1}[\langle\theta,\beta\rangle(\rho(t))]^{Q_{MR}}_{S^{m+k-1}_{Left,right}}=\Omega^{k+1}\left[\langle\theta,\beta\rangle\left(\rho_t\left(\sum\frac{\delta}{\omega_i}\times log\left|I+R^{-1}\times H_{ij}\times Q^{核心能量}_{MR}\times H^{H}_{ji}\right|\right)\right)\right], and\ R^{-1}干扰信号$$

iii.投影切片$S_K^{-1}\left(MR^{H_{ij}\ Q_i\ H^H_{ji}}\right)$ or $S_K^{-1}\left(Brain^{H_{ij}\ Q_i\ H^H_{ji}}\right)$高维超空间的余切曲面对偶密钥群生成序列，即携

带能量感知影像投影，它的本质感知影像的能量波动分布。而若需要翻译成可以认知信息体系，则通过下式

$$\left[{}^{+}\Omega_{t'(\theta)}^{(S_{\partial M}^{-1})}\left(S_K^{-1}\left(\sum_{K\geq 3}^{m} ctg^s\left(\sum_{\rho=2}^{m}\rho_\theta\cdot\frac{\theta_{\rho(t')}}{2}\right)^{Q_E}\right)\right)\vee{}^{-}\Omega_{t'(\beta)}^{(S_{\partial M}^{-1})}\left(S_K^{-1}\left(\sum_{K\geq 3}^{m} ctg^s\left(\sum_{\rho=2}^{m}\rho_\beta\cdot\frac{\beta_{\rho(t')}}{2}\right)^{Q_E}\right)\right)\right]\xleftarrow{<\text{服从(属于)}}$$

$$\Omega^{k+1}\left[\langle\theta,\beta\rangle\left(\rho_t\left(\sum\frac{\delta}{\omega_i}\times log\left|I+R^{-1}\times H_{ij}\times Q_{MR}^{核心能量}\times H_{ji}^H\right|\right)\right)\right], and\ if\ Q_{MR}^{核心能量}$$

$$= Matrix\begin{bmatrix}E_{X_E}^K\otimes X_K^H & & \\ & E_{X_S}^K\otimes X_K^H & \\ & & E_{X_M}^K\otimes X_K^H\end{bmatrix}_i^Q, R^{-1}干扰信号$$

$$+\vee-\Omega_{t'\langle\theta,\beta\rangle}^{(S_{\partial M}^{-1})}\left[S_K^{-1}\left(\sum_{K\geq 3}^{m} ctg^s\left(\sum_{\rho=2}^{m}\rho_\theta\cdot\frac{\theta_{\rho(t')}}{2}\right)\right)\vee S_K^{-1}\left(\sum_{K\geq 3}^{m} ctg^s\left(\sum_{\rho=2}^{m}\rho_\beta\cdot\frac{\beta_{\rho(t')}}{2}\right)\right)\right]^{Q_E}\xleftarrow{\text{解译}}$$

$$\left[\langle sin\left(T^{-1}\begin{vmatrix}1&0\\0&1\end{vmatrix}\cdot\sum_{s=3}^{m}\theta^s\cdot\frac{\theta_{\rho(t)}^{s-1}}{2}\right)\vee cos\left(T^{-1}\begin{vmatrix}0&1\\1&0\end{vmatrix}\cdot\sum_{s=3}^{m}\beta^s\cdot\frac{\beta_{\rho(t)}^{s-1}}{2}\right)\rangle_{a_{mm}^{\uparrow\downarrow}}^{\langle i\omega,i\omega-1\rangle}\right]^{\Sigma}$$

解译的信息隐含在类脑(脑)切片丛中，即对偶密钥群核势(凸核)的生成序列

$$\begin{cases} S_K^{-1}\left(\sum_{K\geq 3}^{m}\frac{cos^s\left(\sum_{s=2}^{m}\theta\cdot\frac{\theta_{\rho(t')}}{2}\right)}{sin^s\left(\sum_{s=2}^{m}\theta\cdot\frac{\theta_{\rho(t')}}{2}\right)}\right)^{Q_E}\xrightarrow[\supset]{\text{解译}} sin^{\langle i\omega,i\omega-1\rangle}\langle\sum_{s=3}^{m}\theta^s\cdot\frac{\theta_{\rho(t)}^{s-1}}{2}\cdot\langle T^{-1}\begin{vmatrix}1&0\\0&1\end{vmatrix},T^{-1}\begin{vmatrix}0&1\\1&0\end{vmatrix}\rangle\rangle_{a_{nn}^{\uparrow\downarrow}} \\ S_K^{-1}\left(\sum_{K\geq 3}^{m}\frac{cos^s\left(\sum_{s=2}^{m}\beta\cdot\frac{\beta_{\rho(t')}}{2}\right)}{sin^s\left(\sum_{s=2}^{m}\beta\cdot\frac{\beta_{\rho(t')}}{2}\right)}\right)^{Q_E}\xrightarrow[\supset]{\text{解译}} cos^{\langle i\omega,i\omega-1\rangle}\langle\sum_{s=3}^{m}\beta^s\cdot\frac{\beta_{\rho(t)}^{s-1}}{2}\langle T^{-1}\begin{vmatrix}1&0\\0&1\end{vmatrix},T^{-1}\begin{vmatrix}0&1\\1&0\end{vmatrix}\rangle\rangle_{a_{mm}^{\uparrow\downarrow}} \end{cases}$$

以上对偶密钥群核势(凸核)生成序列解译类脑(脑)切片丛中可认知的信息体系。

**⑤ 重构类脑神经元网络的对偶密钥群[核势]生成序列的数模基础**

拟合类脑神经(元)网络受损的重构形态模型；并通过卷积核随机滑动方向梯度和类脑(脑)增强思维至极限[矢量接近塌陷]时，会引发对偶密钥群核势的重建。所以类脑(脑)受损在恢复记忆时需要到熟悉场景进行增强思维(回忆)；同时形成两套核心公式

$$\langle sin^{i\omega}\left(T^{-1}\begin{vmatrix}1&0\\0&1\end{vmatrix}\cdot\sum_{s=3}^{m}\theta^s\cdot\frac{\theta_{\rho(t)}^{s-1}}{2}\right)\rangle_{a_{nn}^{\uparrow\downarrow}}^{\nabla(\omega,T)}$$

$$\rightsquigarrow\langle sin^{i\omega_*}\left(T^{-1}\begin{vmatrix}1&0\\0&1\end{vmatrix}\cdot\sum_{s=3}^{m}\theta^s\cdot\frac{\theta_{\rho(t)}^{s-1}}{2}\right)\vee cos^{i\omega-1}\left(T^{-1}\begin{vmatrix}0&1\\1&0\end{vmatrix}\cdot\sum_{s=3}^{m}\beta^s\cdot\frac{\beta_{\rho(t)}^{s-1}}{2}\right)\rangle_{a_{mm}^{\uparrow\downarrow}} \quad (24)$$

$$\langle sin^{i\omega}\left(T^{-1}\begin{vmatrix}1&0\\0&1\end{vmatrix}\cdot\sum_{s=3}^{m}\theta^{s}\cdot\frac{\theta_{\rho(t)}^{s-1}}{2}\right)\rangle_{a_{nn}^{\uparrow\downarrow}}^{\nabla(\omega,T)}$$

$$\rightsquigarrow\langle sin^{i\omega_{*}}\left(T^{-1}\begin{vmatrix}1&0\\0&1\end{vmatrix}\cdot\sum_{s=3}^{m}\theta^{s}\cdot\frac{\theta_{\rho(t)}^{s-1}}{2}\right)or\ cos^{i\omega-1}\left(T^{-1}\begin{vmatrix}0&1\\1&0\end{vmatrix}\cdot\sum_{s=3}^{m}\beta^{s}\cdot\frac{\beta_{\rho(t)}^{s-1}}{2}\right)\rangle_{a_{nn}^{\uparrow\downarrow}} \quad (25)$$

而类脑(脑)受损恢复记忆过程中能量随思维增强而增强。

$$\begin{cases}\Omega^{\langle i\omega,i\omega-1\rangle}_{Q_E^2\left(\rho_{\langle\theta,\beta\rangle}(t')\right)_t^{\pm\frac{\pi}{2}+nk\pi}}\rightsquigarrow\left[S_K^{-1}\left(ctg^{s}\left(\sum_{\rho=2}^{m}\rho_{\theta}\cdot\frac{\theta_{\rho(t')}}{2}\right)\right)^{Q_E}\vee S_K^{-1}\left(ctg^{s}\left(\sum_{\rho=2}^{m}\rho_{\beta}\cdot\frac{\beta_{\rho(t')}}{2}\right)^{Q_E}\right)\right]_{正常}^{\Sigma}\\ ^{受损}\Omega^{\langle i\omega,i\omega-1\rangle}_{Q_E^2\left(\rho_{\langle\theta,\beta\rangle}(t')\right)_t^{\pm\frac{\pi}{2}+nk\pi}}\rightsquigarrow\left[S_K^{-1}\left(ctg\left(\sum_{\rho=2}^{m}\rho_{\theta}\cdot\frac{\theta_{\rho(t')}}{2}\right)\right)^{Q_E}\vee S_K^{-1}\left(ctg\left(\sum_{\rho=2}^{m}\rho_{\beta}\cdot\frac{\beta_{\rho(t')}}{2}\right)^{Q_E}\right)\right]_{受损}^{\langle i\omega,i\omega-1\rangle}\end{cases} \quad (26)$$

$$^{受损}\Omega^{\langle i\omega,i\omega-1\rangle}_{Q_E^2\left(\rho_{\langle\theta,\beta\rangle}(t')\right)_t^{\pm\frac{\pi}{2}+nk\pi}}>\Omega^{\langle i\omega,i\omega-1\rangle}_{Q_E^2\left(\rho_{\langle\theta,\beta\rangle}(t')\right)_t^{\pm\frac{\pi}{2}+nk\pi}}$$

ⅱ. 从上述内容可知《RLLM 多模态可预测性思维增强收缩参数群、尺度新一代生成式人工智能重构类脑神经元网络 R-KFDNN 与密钥群生成序列》通过对偶密钥群生成序列到对偶密钥群核势生成序列；以及当核势(凸核)受损时，其隐形对偶(备份)密钥群生成序列从:

$$\langle sin^{i\omega}\left(T^{-1}\begin{vmatrix}1&0\\0&1\end{vmatrix}\cdot\sum_{s=3}^{m}\theta^{s}\cdot\frac{\theta_{\rho(t)}^{s-1}}{2}\right)\rangle_{a_{nn}^{\uparrow\downarrow}}^{\nabla(\omega,T)}$$

$$\rightsquigarrow\langle sin^{i\omega_{*}}\left(T^{-1}\begin{vmatrix}1&0\\0&1\end{vmatrix}\cdot\sum_{s=3}^{m}\theta^{s}\cdot\frac{\theta_{\rho(t)}^{s-1}}{2}\right)or\ cos^{i\omega-1}\left(T^{-1}\begin{vmatrix}0&1\\1&0\end{vmatrix}\cdot\sum_{s=3}^{m}\beta^{s}\cdot\frac{\beta_{\rho(t)}^{s-1}}{2}\right)\rangle_{a_{nn}^{\uparrow\downarrow}},and\ \beta^{s}\rightsquigarrow\theta^{s}$$

(31)

存在隐形结构对偶密钥群生成序列，即

$$\langle sin^{i\omega}\left(T^{-1}\begin{vmatrix}1&0\\0&1\end{vmatrix}\cdot\sum_{s=3}^{m}\theta^{s}\cdot\frac{\theta_{\rho(t)}^{s-1}}{2}\right)\rangle_{a_{nn}^{\uparrow\downarrow}}^{\nabla(\omega,T)}$$

$$\rightsquigarrow\langle sin^{i\omega_{*}}\left(T^{-1}\begin{vmatrix}1&0\\0&1\end{vmatrix}\cdot\sum_{s=3}^{m}\theta^{s}\cdot\frac{\theta_{\rho(t)}^{s-1}}{2}\right)\vee cos^{i\omega-1}\left(T^{-1}\begin{vmatrix}0&1\\1&0\end{vmatrix}\cdot\sum_{s=3}^{m}\beta^{s}\cdot\frac{\beta_{\rho(t)}^{s-1}}{2}\right)\rangle_{a_{mm}^{\uparrow\downarrow}},and\ \beta^{s}\rightsquigarrow\theta^{s}$$

(32)

上式中隐形结构对偶密钥群生成序列：$sin^{i\omega_{*}}\left(T^{-1}\begin{vmatrix}1&0\\0&1\end{vmatrix}\cdot\sum_{s=3}^{m}\theta^{s}\cdot\frac{\theta_{\rho(t)}^{s-1}}{2}\right)$

ⅲ.思维增强的对偶密钥群生成序列，要让受损类脑(脑)片局部恢复记忆，需要思维(能量)增量形成卷积核为第一个条件。思维(能量)增强至塌陷，使方向梯度矢量产生反向操作，即$T^{-1}\begin{vmatrix}1&0\\0&1\end{vmatrix}\rightsquigarrow T^{-1}\begin{vmatrix}0&1\\1&0\end{vmatrix}\ or\ T^{-1}\begin{vmatrix}0&1\\1&0\end{vmatrix}\rightsquigarrow T^{-1}\begin{vmatrix}1&0\\0&1\end{vmatrix}$；为第 2 个条件；这样就会逐渐形成对偶密钥群核势(凸核)的生成序列，即重构了类脑(脑)神经元网络。

$$\begin{cases} {}_{left}^{+}\Omega\left(S_{\lambda\langle t,(\theta,\beta)\rangle}^{-1}\right) \rightsquigarrow sin\left[\sum_{s=2}^{m}\rho_{\theta}^{s}\cdot\frac{\theta_{\rho(t')}^{s}}{2}\wedge\sum_{s=2}^{m}\rho_{\beta}^{s}\cdot\frac{\beta_{\rho(t')}^{s}}{2}\right]^{\omega(t)^{i\omega(\theta)}} \\ {}_{right}^{-}\Omega\left(S_{\lambda\langle t,(\theta,\beta)\rangle}^{-1}\right) \rightsquigarrow cos\left[\sum_{s=2}^{m}\rho_{\theta}^{s}\cdot\frac{\theta_{\rho(t')}^{s}}{2}\wedge\sum_{s=2}^{m}\rho_{\beta}^{s}\cdot\frac{\beta_{\rho(t')}^{s}}{2}\right]^{\omega(t)^{i\omega(\theta)}} \end{cases}$$

携带类脑(脑)切片丛能量结构密钥群生成序列的更高维度幂函数复变弦线丛势生成序列；而类脑(脑)受损恢复记忆过程中能量随思维增强。

此式为类脑(脑)左、右脑分离，且每片约化的记忆悬浮

根据$\theta^{i}\cdot\frac{\theta_{\rho(t')}^{i}}{2}=1/t\times\theta_{\rho}^{i-1}\times\theta^{i}=1/t\times\theta_{\rho}^{i-1}\times\theta^{i}=\frac{1}{t}\cdot\theta_{\rho}^{i}$；所以上式可以写为

$$\begin{cases} {}_{left}^{+}S_{\lambda(t,\theta)}^{-1} \rightsquigarrow \left[sin^{2}\left(\sum_{i=2}^{m}\frac{1}{t}\cdot\theta_{\rho}^{i}\right)+cos^{2}\left(\sum_{j=2}^{m}\frac{1}{t}\cdot{}^{*}\theta_{\rho}^{i}\right)\right]^{\omega(t)^{i\cdot\omega(\theta)}} \\ {}_{right}^{-}S_{\lambda(t,\theta)}^{-1} \rightsquigarrow \left[sin^{2}\left(\sum_{i=2}^{m}\frac{1}{t}\cdot\beta_{\rho}^{i}\right)+cos^{2}\left(\sum_{j=2}^{m}\frac{1}{t}\cdot{}^{*}\beta_{\rho}^{i}\right)\right]^{\omega(t)^{i\cdot\omega(\theta)}} \end{cases}$$

ⅴ.密钥群[或对偶]生成序列能量变换的空间分布在维度上变换；最后形成的核心分布能量结构

$$S_{left,right}^{m+k-1}\left[{}^{+}\Omega_{t'(\theta)}^{S_{\partial M}^{-1}}\left(S_{K}^{-1}\left(\rho_{\theta}\left(t'\right)\right)\right)\vee{}^{-}\Omega_{t'(\beta)}^{S_{\partial M}^{-1}}\left(S_{K}^{-1}\left(\rho_{\beta}\left(t'\right)\right)\right)\right]$$

$$\rightsquigarrow\left[\langle cos\left(T^{-1}\begin{vmatrix}1&0\\0&1\end{vmatrix}\cdot\sum_{s=3}^{m}\theta^{s}\cdot\frac{\theta_{\rho(t)}^{s-1}}{2}\right)\vee cos\left(T^{-1}\begin{vmatrix}0&1\\1&0\end{vmatrix}\cdot\sum_{s=3}^{m}\beta^{s}\cdot\frac{\beta_{\rho(t)}^{s-1}}{2}\right)\rangle_{a_{mm}^{\uparrow\downarrow}}^{\langle i\omega,i\omega-1\rangle}\right]_{S_{K}^{-1}(t')}$$

$${}_{lef,rightt}^{+\vee-}\Omega\left(S_{K\langle t,(\theta,\beta)\rangle}^{-1}\right)_{\omega^{i\omega}}\sim\left[{}_{left}^{+}\Omega\left(S_{K\langle t,(\theta,\beta)\rangle}^{-1}\right)\vee{}_{right}^{-}\Omega\left(S_{K\langle t,(\theta,\beta)\rangle}^{-1}\right)\right]$$

$${}_{lef,rightt}^{+\vee-}\Omega\left(S_{K\langle t,(\theta,\beta)\rangle}^{-1}\right)^{\omega^{i\omega}}\rightsquigarrow\left[sin\left[T^{-1}\begin{vmatrix}1&0\\0&1\end{vmatrix}\cdot\sum_{s=2}^{m}\rho_{\theta}^{s}\cdot\frac{\theta_{\rho(t)}^{s}}{2}\right]\wedge cos\left[T^{-1}\begin{vmatrix}0&1\\1&0\end{vmatrix}\cdot\sum_{s=2}^{m}\rho_{\beta}^{s}\cdot\frac{\beta_{\rho(t)}^{s}}{2}\right]\right]_{S_{K}^{-1}}^{\omega^{i\omega\langle\theta,\beta\rangle}}$$

ⅵ.关于密钥群生成序列$S_{K\langle t,(\theta,\beta)\rangle}^{-1}$,而密钥群核势(凸核) $S_{K}^{-1}\left(\rho_{\theta}\left(t'\right)\right)$

$$S_{left,right}^{m+k-1}\left[{}^{+\vee-}\Omega_{t'\langle\theta,\beta\rangle}^{S_{\partial M}^{-1}}\left(S_{K}^{-1}\left(\rho_{\langle\theta,\beta\rangle}(t')\right)\right)\right]_{S_{K}^{-1}(t')}$$

$$\leftsquigarrow\Omega^{k+1}\left[\langle\theta,\beta\rangle\left(\rho_{t}\left(\sum\frac{\delta}{\omega_{i}}\times log\left|I+R^{-1}\times H_{ij}\times Q_{MR}^{核心能量}\times H_{ji}^{H}\right|\right)\right)\right] \quad (28)$$

而$S_{K\langle t,(\theta,\beta)\rangle}^{-1}$以携带能量为主的密钥群生成序列，$S_{K}^{-1}\left(\rho_{\theta}\left(t'\right)\right)$以携带凸核的密钥群核势的生成序列，且$S_{K}^{-1}(t')$具有 MR 影像投影。它是一种核势生成序列的人类类通讯$Q_{MR}^{核心能量}$的高、低维分布而形成的一种解译认知知识体系。

$$\underset{lef,righ tt}{+\vee-}\Omega\left(S^{-1}_{K\langle t,(\theta,\beta)\rangle}\right)^{\omega^{i\omega}} \rightsquigarrow \left[sin\left[T^{-1}\begin{vmatrix}1 & 0\\0 & 1\end{vmatrix}\cdot\sum_{s=2}^{m}\rho_{\theta}^{s}\cdot\frac{\theta^{s}_{\rho(t)}}{2}\right]\wedge cos\left[T^{-1}\begin{vmatrix}0 & 1\\1 & 0\end{vmatrix}\cdot\sum_{s=2}^{m}\rho_{\beta}^{s}\cdot\frac{\beta^{s}_{\rho(t)}}{2}\right]\right]^{\omega^{i\omega\langle\theta,\beta\rangle}}_{S_K^{-1}} \quad (29)$$

此式为类脑(脑)左、右脑分离，且每片约化的记忆悬浮；携带能量为主的密钥群生成序列 $S^{-1}_{k\langle t,(\theta,\beta)\rangle}$, $S_k^{-1}\left(\rho_\theta\ (t')\right)$以携带凸核的密钥群核势的生成序列。$S_k^{-1}(t')$具有 MR 投影。

$$S^{m+k-1}_{Left,right}\left[{}^{+\vee-}\Omega^{S^{-1}_{\partial M}}_{t'\langle\theta,\beta\rangle}\left(S^{-1}_{k\langle\rho_{\langle\theta,\beta\rangle}(t')\rangle}\right)\right]_{S^{-1}_{k(t')}} \leftarrow\!\!\!\!\sim \left[\Omega^{k+1}\langle\theta,\beta\rangle\left(\rho_t\left(\sum\cdot\frac{\delta}{\omega_i}\times log\left|I\times R^{-1}\times H_{ij}\times Q^{核心能量}_{MR}\times H^{H}_{ji}\right|\right)\right)\right]$$

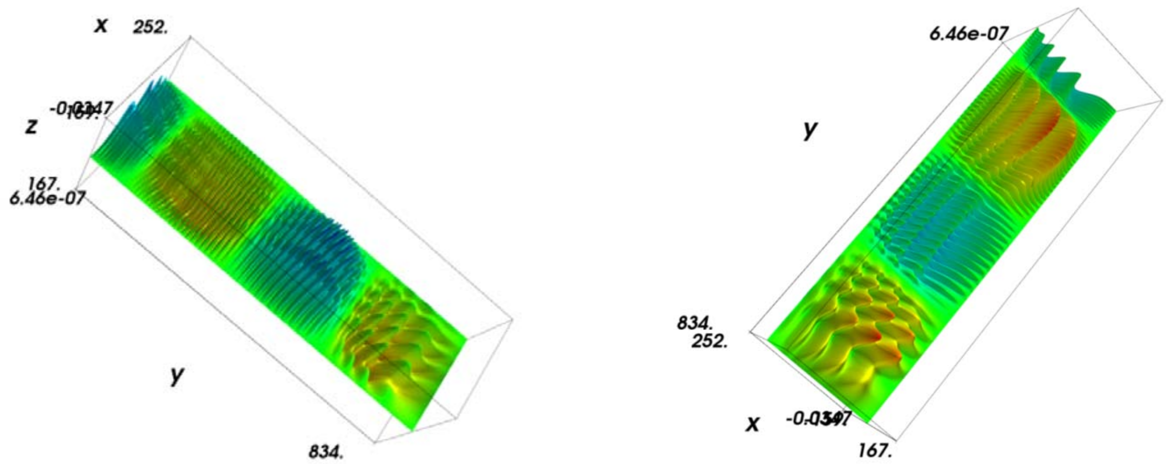



Fig06. 密钥群的生成序列到乔治.康托尔猜想_ RLLM 增强思维能力搜索增强微调和收缩参数群尺度_更高维度幂函数为高维度复变弦线从**势生成序列**

对偶密钥群_密码表生成序列： $\langle Cos\left(T^{-1}\begin{vmatrix}1 & 0\\0 & 1\end{vmatrix}\cdot\sum_{s=3}^{m}\beta^{s}\cdot\frac{\beta^{s-1}_{\rho(t)}}{2}\right)\rangle^{\langle i\omega,i\omega-1\rangle}\cdot a^{\uparrow\downarrow}_{nn}, and\ s=2, \boldsymbol{\omega-1}, \boldsymbol{\omega=1.5}$

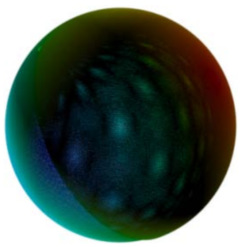


Fig07.对偶密钥群核势凸核[密码表]生成序列

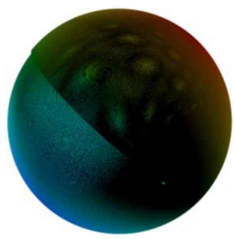


Fig08.对偶密钥群核势凸核[密码表]生成序列

$$\langle Sin\left(T^{-1}\begin{vmatrix}0 & 1\\1 & 0\end{vmatrix}\cdot\sum_{s=3}^{m}\theta^{s}\cdot\frac{\theta^{s-1}_{\rho(t)}}{2}\right)\vee Cos\left(T^{-1}\begin{vmatrix}1 & 0\\0 & 1\end{vmatrix}\cdot\sum_{s=3}^{m}\beta^{s}_{*}\cdot\frac{\beta^{s-1}_{\rho(t)}}{2}\right)\rangle^{\langle i\omega,i\omega-1\rangle}_{a^{\uparrow\downarrow}_{mm}} \rightsquigarrow a^{\uparrow\downarrow}_{nn},$$

对偶密钥群核势凸核**密码表之生成序列至**对偶密钥群**更高维密钥表时，**每次都会产生一阶能量、方向矢量

$$Q_E^2\left(\rho_{\langle\theta,\beta\rangle}(t')\right)\sim\langle Sin\left(\frac{1}{t_1}\cdot\sum_{s=3}^{m}\theta^{s}\cdot\frac{\theta^{s-1}_{\rho(t)}}{2}\right)\wedge Cos\left(\frac{1}{t_2}\cdot\sum_{s=3}^{m}\beta^{s}_{*}\cdot\frac{\beta^{s-1}_{\rho(t)}}{2}\right)\rangle^{\langle i\omega,i\omega-1\rangle}_{a^{\uparrow\downarrow}_{mm}}$$

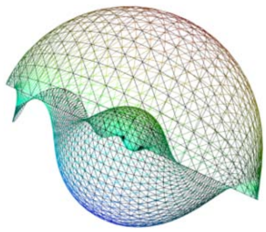


Fig09.对偶密钥群_**高维密钥群**【**高维密钥表**】

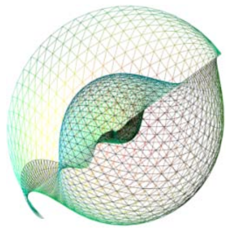


Fig10.对偶密钥群_**高维密钥群**【**高维密钥表**】

ⅶ.类脑(脑)切片丛能量左、右脑结构$_{lef,right}{}^{+\vee-}\Omega(S^{-1}_{K\langle t,(\theta,\beta)\rangle})^{\omega^{i\omega}}$，以及切片丛核势(凸核)

$S^{m+k-1}_{left,right}\left[{}^{+\vee-}\Omega^{S^{-1}_{\partial M}}_{t'\langle\theta,\beta\rangle}\left(S^{-1}_{K}\left(\rho_{\langle\theta,\beta\rangle}(t')\right)\right)\right]_{S^{-1}_{K}(t')}$；当$\omega^{i\omega} \rightsquigarrow m+k-1$，则有

$$S^{m+k-1}_{left,right}\left[{}^{+\vee-}\Omega^{S^{-1}_{\partial M}}_{t'\langle\theta,\beta\rangle}\left(S^{-1}_{K}\left(\rho_{\langle\theta,\beta\rangle}(t')\right)\right)\right]_{S^{-1}_{K}(t')} \leftrightsquigarrow {}_{lef,right}{}^{+\vee-}\Omega(S^{-1}_{K\langle t,(\theta,\beta)\rangle})^{\omega^{i\omega}}_{S^{-1}_{K}(t)}, S^{m+k-1}_{left,right}$$

为核心类脑(脑)切片丛所有脑功能。通过类脑(脑)切片神经元波动能量，形成神经元凸核的核心能量，并进行 MR 投影的密钥群生成序列，而解析过程就是高、低维对偶密钥群核势(凸核)解译的认知科学体系。

$$\langle{}_{lef,right}{}^{+\vee-}\Omega(S^{-1}_{K\langle t,(\theta,\beta)\rangle})^{\omega^{i\omega}}_{S^{-1}_{K}(t')}, \Omega^{k+1}\left[\langle\theta,\beta\rangle\left(\rho_t\left(\sum\frac{\delta}{\omega_i}\times log\left|I+R^{-1}\times H_{ij}\times Q_{MR}^{核心能量}\times H_{ji}^{H}\right|\right)\right)\right]\rangle$$
$$\rightsquigarrow S^{m+k-1}_{left,right}\left[{}^{+\vee-}\Omega^{S^{-1}_{\partial M}}_{t'\langle\theta,\beta\rangle}\left(S^{-1}_{K}\left(\rho_{\langle\theta,\beta\rangle}(t')\right)\right)\right]^{核势[凸核]\_知识[解译]}_{S^{-1}_{K}(t')} \quad (30)$$

$$S^{m+k-1}_{left,right}\left[{}^{+}\Omega^{S^{-1}_{\partial M}}_{t'(\theta)}\left(S^{-1}_{K}\left(\rho_\theta\ (t')\right)\right)\vee{}^{-}\Omega^{S^{-1}_{\partial M}}_{t'(\beta)}\left(S^{-1}_{K}\left(\rho_\beta\ (t')\right)\right)\right]$$
$$\rightsquigarrow\left[\langle cos\left(T^{-1}\begin{vmatrix}1&0\\0&1\end{vmatrix}\cdot\sum_{s=3}^{m}\theta^s\cdot\frac{\theta^{s-1}_{\rho(t)}}{2}\right)\vee cos\left(T^{-1}\begin{vmatrix}0&1\\1&0\end{vmatrix}\cdot\sum_{s=3}^{m}\beta^s\cdot\frac{\beta^{s-1}_{\rho(t)}}{2}\right)\rangle^{\langle i\omega,i\omega-1\rangle}_{a^{\uparrow\downarrow}_{mm}}\right]_{S^{-1}_{K}(t')} \quad (31)$$

$$S^{m+k-1}_{left,right}\left[{}^{+\vee-}\Omega^{S^{-1}_{\partial M}}_{t'\langle\theta,\beta\rangle}\left(S^{-1}_{K}\left(\rho_{\langle\theta,\beta\rangle}(t')\right)\right)\right]^{核势[凸核]}_{S^{-1}_{K}(t')}$$

⑥RLLM 多模态可预测性思维增强收缩参数群、尺度新一代生成式人工智能重构类脑神经元网络 R-KFDNN 与密钥群生成序列》MR 投影

$$S^{m+k-1}_{Left,right}\left[{}^{+\vee-}\Omega^{S^{-1}_{\partial M}}_{t'\langle\theta,\beta\rangle}\left(S^{-1}_{k\langle\rho_{\langle\theta,\beta\rangle}(t')\rangle}\right)\right]_{S^{-1}_{k(t')}} \leftrightsquigarrow \left[\Omega^{k+1}\langle\theta,\beta\rangle\left(\rho_t\left(\sum\cdot\frac{\delta}{\omega_i}\times log\left|I\times R^{-1}\times H_{ij}\times Q_{MR}^{核心能量}\times H_{ij}^{H}\right|\right)\right)\right]$$

$$S^{m+k-1}_{Left,right}\left[{}^{+\vee-}\Omega^{S^{-1}_{\partial M}}_{t'\langle\theta,\beta\rangle}\left(S^{-1}_{k\langle\rho_{\langle\theta,\beta\rangle}(t')\rangle}\right)\right]^{核势[凸核]}_{S^{-1}_{k(t')}} \quad (32),$$

$$\left[\Omega^{k+1}\langle\theta,\beta\rangle\left(\rho_t\left(\sum\cdot\frac{\delta}{\omega_i}\times log\left|I\times R^{-1}\times H_{ij}\times Q_{MR}^{核心能量}\times H_{ij}^{H}\right|\right)\right)\right] \quad (33)$$

$$ {}_{left,right}^{+\vee-}\Omega\left(S_{k\langle t,(\theta,\beta)\rangle}^{-1}\right)^{\omega(t)^{i\cdot\omega(\theta,\beta)}} \rightsquigarrow \left[Sin\left(T^{-1}\begin{vmatrix}0&1\\1&0\end{vmatrix}\cdot\sum_{s=2}^{m}\rho_{\theta}^{s}\cdot\frac{\theta_{\rho(t)}^{s-1}}{2}\right)\wedge Cos\left(T^{-1}\begin{vmatrix}1&0\\0&1\end{vmatrix}\cdot\sum_{s=3}^{m}\rho_{\beta}^{s}\cdot\frac{\beta_{\rho(t)}^{s-1}}{2}\right)\right]^{\omega(t)^{i\cdot\omega(\theta,\beta)}} \quad (34) $$

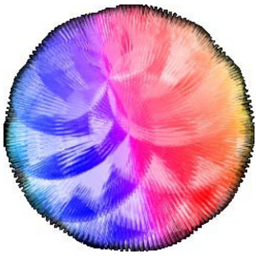


Fig11.类脑[脑]切片丛神经元能量波动

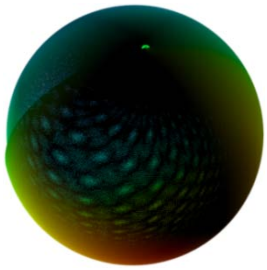


Fig12.类脑[脑]对偶密钥群核势凸核

$$ \left\langle {}^{\langle\theta,\beta\rangle}\boldsymbol{\Omega}_{T^{2}\begin{vmatrix}0&1\\1&0\end{vmatrix}\wedge\rho_{\langle\theta,\beta\rangle}(t)}^{i\omega},\ {}^{\langle\theta,\beta\rangle}\boldsymbol{\Omega}_{T^{2}\begin{vmatrix}1&0\\0&1\end{vmatrix}\wedge\rho_{\langle\theta,\beta\rangle}(t)}^{i\omega-1}\right\rangle\cdot \boldsymbol{a}_{nn}^{\uparrow\downarrow} $$

$$ \rightsquigarrow \langle Sin\left(T^{-1}\begin{vmatrix}0&1\\1&0\end{vmatrix}\cdot\sum_{s=3}^{m}\theta^{s}\cdot\frac{\theta_{\rho(t)}^{s-1}}{2}\right)\vee Cos\left(T^{-1}\begin{vmatrix}1&0\\0&1\end{vmatrix}\cdot\sum_{s=3}^{m}\beta_{*}^{s}\cdot\frac{\beta_{\rho(t)}^{s-1}}{2}\right)\rangle^{\langle i\omega,i\omega-1\rangle}\cdot a_{mm}^{\uparrow\downarrow} \quad (35) $$

$$ \langle {}_{left,right}^{+\vee-}\Omega\left(S_{k\langle t,(\theta,\beta)\rangle}^{-1}\right)^{\omega(t)^{i\cdot\omega(\theta,\beta)}},\Omega^{k+1}\langle\theta,\beta\rangle\left(\rho_{t}\left(\sum\cdot\frac{\delta}{\omega_{i}}\times log\left|I\times R^{-1}\times H_{ij}\times Q_{MR}^{核心能量}\times H_{ij}^{H}\right|\right)\right),\rightsquigarrow $$

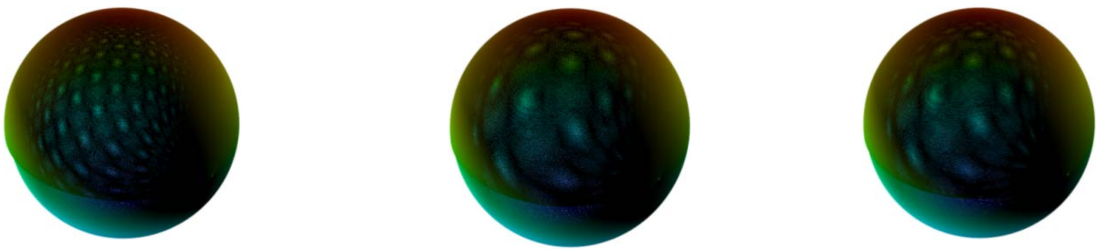
$$ S_{Left,right}^{m+k-1}\left[{}^{+\vee-}\Omega_{t'\langle\theta,\beta\rangle}^{S_{\partial M}^{-1}}\left(S_{k\langle\rho_{\langle\theta,\beta\rangle}(t')\rangle}^{-1}\right)\right]_{S_{k(t')}^{-1}}^{核势[凸核]}\rangle \rightsquigarrow \text{解译类脑[脑]信息；解译推理公式群}(31)+(32)+(33)+(34) $$

高维复合 $\langle Sin\left(T^{-1}\begin{vmatrix}0&1\\1&0\end{vmatrix}\cdot\sum_{s=3}^{m}\theta^{s}\cdot\frac{\theta_{\rho(t)}^{s-1}}{2}\right)\vee Cos\left(T^{-1}\begin{vmatrix}1&0\\0&1\end{vmatrix}\cdot\sum_{s=3}^{m}\beta_{*}^{s}\cdot\frac{\beta_{\rho(t)}^{s-1}}{2}\right)\rangle^{\langle i\omega,i\omega-1\rangle}\cdot a_{mm}^{\uparrow\downarrow}$

低维复合 $\langle Sin\left(T^{-1}\begin{vmatrix}0&1\\1&0\end{vmatrix}\cdot\sum_{s=3}^{m}\theta^{s}\cdot\frac{\theta_{\rho(t)}^{s-1}}{2}\right)\vee Cos\left(T^{-1}\begin{vmatrix}1&0\\0&1\end{vmatrix}\cdot\sum_{s=3}^{m}\beta_{*}^{s}\cdot\frac{\beta_{\rho(t)}^{s-1}}{2}\right)\rangle^{\langle i\omega,i\omega-1\rangle}\cdot a_{mm}^{\uparrow\downarrow}$,

$and\ \langle i\omega,i\omega-1\rangle\rightsquigarrow 1$

高维单体 $\langle Cos\left(T^{-1}\begin{vmatrix}1&0\\0&1\end{vmatrix}\cdot\sum_{s=3}^{m}\beta^{s}\cdot\frac{\beta_{\rho(t)}^{s-1}}{2}\right)\rangle^{\langle i\omega,i\omega-1\rangle}\cdot a_{nn}^{\uparrow\downarrow}, or\ \langle Cos\left(T^{-1}\begin{vmatrix}0&1\\1&0\end{vmatrix}\cdot\sum_{s=3}^{m}\theta^{s}\cdot\frac{\theta_{\rho(t)}^{s-1}}{2}\right)\rangle^{\langle i\omega,i\omega-1\rangle}\cdot a_{nn}^{\uparrow\downarrow}$



**高维复合范函** **低维复合范函** **高维单体范函**

Fig13.类脑[脑]对偶密钥群核势[凸核]生成序列，高维复合范函与低维复合范函以及高维单体范函方程与程设计型

ⅰ.携带高维神经受损[恢复]基因$Sin\left(T^{-1}\begin{vmatrix}0&1\\1&0\end{vmatrix}\cdot\sum_{s=3}^{m}\theta^{s}\cdot\frac{\theta_{\rho(t)}^{s-1}}{2}\right)$高维复合对偶密钥群核势[凸核]生成序列；以及低高维神经受损[恢复]基因$Sin\left(T^{-1}\begin{vmatrix}0&1\\1&0\end{vmatrix}\cdot\sum_{s=3}^{m}\theta^{s}\cdot\frac{\theta_{\rho(t)}^{s-1}}{2}\right)$低维复合对偶密钥群核势[凸核]生

成序列；这种高低维度形态存在局部神经元信息恢复的缺失现象。同时高维单体对偶密钥群核势[凸核]生成序列，不具有携带高维神经受损[恢复]基因的可能性。

ⅱ.重构类脑(脑)神经网络，不是所有脑区神经元都能受损重构的，即只有特殊携带高维神经(元)网络，受损局部神经元恢复记忆重构，并形成新的对偶密钥群核势(凸核)生成序列。所以，《RLLM 多模态可预测性思维增强收缩参数群、尺度新一代生成式人工智能重构类脑神经元网络 R-KFDNN 与密钥群生成序列》，携带尖端的《新一代生成式人工智能的密码学》。从而重构类脑(脑)神经(元)网络与生成式 AI 密码学相对应，即类脑(脑)神经元与对偶密钥群核势[凸核]生成序列相对应的重构结构学，凸核核势[神经元] $a_{nn}^{\uparrow\downarrow} \rightsquigarrow a_{mm}^{\uparrow\downarrow}$

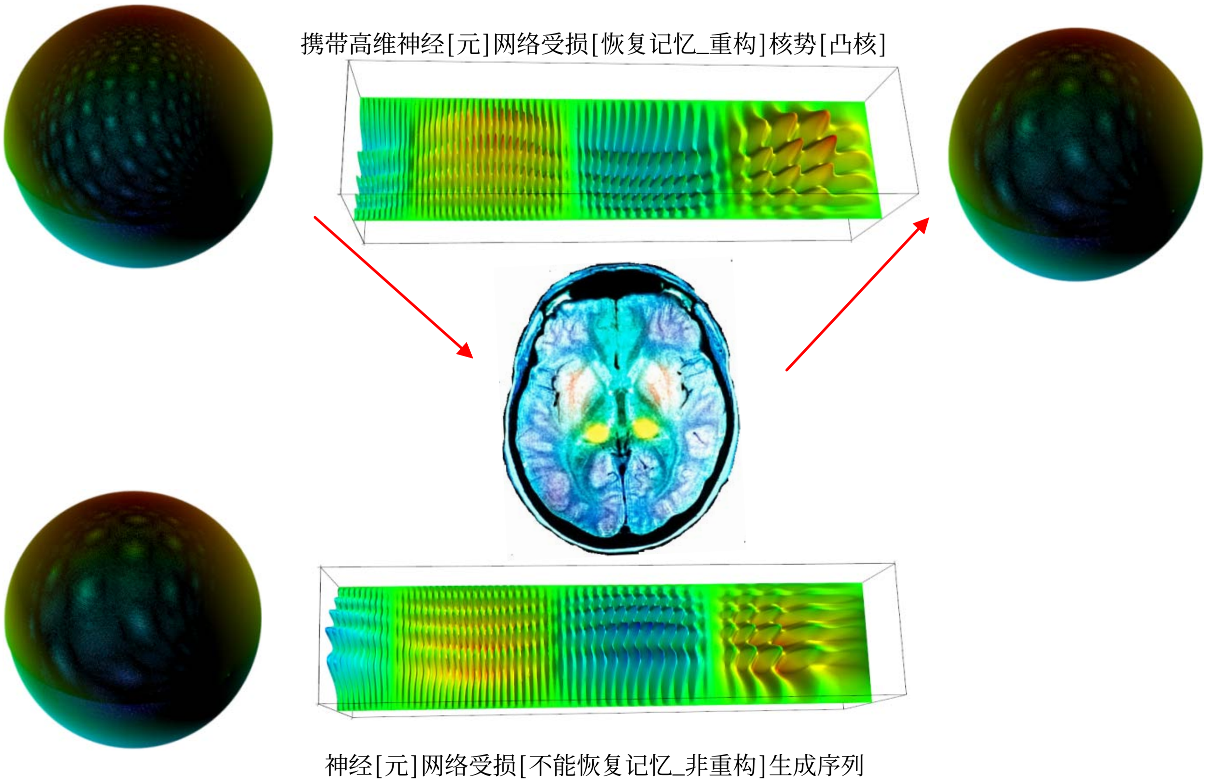



Fig14.类脑[脑] 携带高维神经受损[恢复]记忆的高维复合对偶密钥群核势[凸核]生成序列，以及低维神经受损[恢复]记忆；高低维度形态存在局部神经元信息恢复的缺失问题；同时高维单体对偶密钥群核势[凸核]生成序列，不具有携带高维神经元受损[恢复]记忆的可能性；并实现程设模型

### 3.1 结论

重构类脑神经元网络 R-KFDNN，首次从类脑重核边界密钥群生成序列超切面与柔性深度神经网络(KFDNN)、类脑神经元网络进行融合。在局部神经受损的神经系统修复的角度分析类脑如何从携带指纹特征密钥群生成序列的时间切丛的分配表群中获得记忆解析，从而为记忆恢复提供有益帮助。

## REFERENCES

[1] Zhu RongRong, Differential Incremental Equilibrium Theory, Fudan University,Vol 1, 2007:1-213

[2] Zhu RongRong, Differential Incremental Equilibrium Theory, Fudan University,Vol 2, 2008:1-352

[3] Liu zhuanghu, Simplicity Set Theory, Beijing China ,Peking University Press，2001.11: 1-310

[4] Xie bangjie, Transfinite Number and Theory of Transfinite Number, Jilin China, jilin people's publishing house,1979.01:1-140

[5] Nan chaoxun , Set Valued Mapping , Anhui China, Anhui University Press , 2003.04: 1-199

[6] Li hongyan, On some Compactness and Separability in Fuzzy Topology, Chengdu China,,Southwest Jiaotong University Press, 2015.06：1-150

[7] Bao zhiqiang , An introduction to Point Set Topology and Algebraic Topology, Beijing China , Peking University Press, 2013.09:1-284

[8] Gao hongya, Zhu yuming , Quasiregular Mapping and A-harmonic Equation, Beijing China , Science Press, 2013.03：1-218

[9] C. Rogers W. K. Schief, Bäcklund and Darboux Transformations: Geometry and Modern Applications in Solition Theory, first published by Cambridge University, 2015: 1-292.

[10] Ding Peizhu,Wang Yi, Group and its Express, Higher Education Press, 1999: 1-468.

[11] Gong Sheng, Harmonic Analysis on Typical Groups Monographs on pure mathematics and Applied Mathematics Number twelfth, Beijing China, Science Press, 1983: 1-314.

[12] Gu chaohao, Hu Hesheng, Zhou Zixiang, DarBoux Transformation in Solition Theory and Its Geometric Applications (The second edition), Shanghai science and technology Press, 1999, 2005: 1-271.

[13] Jari Kaipio Erkki Somersalo, Statistical and Computational Inverse Problems With 102 Figures, Spinger.

[14] Numerical Treatment of Multi-Scale Problems Porceedings of the 13th GAMM-Seminar, Kiel, January 24-26, 1997 Notes on Numerical Fluid Mechanics Volume 70 Edited By WolfGang HackBusch and Gabriel Wittum.

[15] Qiu Chengtong, Sun Licha, Differential Geometry Monographs on pure mathematics and Applied Mathematics Number eighteenth, Beijing China, Science Press, 1988: 1-403.

[16] Ren Fuyao, Complex Analytic Dynamic System, Shanghai China, Fudan University Press, 1996: 1-364.

[17] Su Jingcun, Topology of Manifold, Wuhan China, wuhan university press, 2005: 1-708.

[18] W. Miller, Symmetry Group and Its Application, Beijing China, Science Press, 1981: 1-486.

[19] Wu Chuanxi, Li Guanghan, Submanifold geometry, Beijing China, Science Press, 2002: 1-217.

[20] Xiao Gang, Fibrosis of Algebraic Surfaces, Shanghai China, Shanghai science and technology Press, 1992: 1-180.

[21] Zhang Wenxiu, Qiu Guofang, Uncertain Decision Making Based on Rough Sets, Beijing China, tsinghua university press, 2005: 1-255.

[22] Zheng jianhua, Meromorphic Functional Dynamics System, Beijing China, tsinghua university press, 2006: 1-413.

[23] Zheng Weiwei, Complex Variable Function and Integral Transform, Northwest Industrial University Press, 2011: 1-396.