非自明ホロノミー多重 caloron 解のモジュライ空間

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■Calorons – Instantons on $\mathbb{R}^3 \times S^1$

$\beta \to 0$ $\Rightarrow$ instanton size ∞ $\Rightarrow$ Monopoles (on $\mathbb{R}^3$)

$\beta \to \infty$ $\Rightarrow$ instanton size 0 $\Rightarrow$ Instantons on $\mathbb{R}^4$

Interpolating instantons $\leftrightarrow$ monopoles

Non-trivial Wilson (Polyakov) loop

$$\mathcal{P}\exp\left(i\int_{S^1} A_0 dx_0\right) \neq 1,\ |x| \to \infty$$

$\Rightarrow {}^{\exists}$ SSB = quark 閉込め相の古典論的根拠

M_n^{inst} = Moduli space of Instantons in $\mathbb{R}^4 \simeq S^4$,

M_n = **Moduli space of calorons**:

$$M_n^{inst} \supset M_n$$

For $G = SU(2)$

$\dim(M_n^{inst}) = 8n - 3$

$\dim(M_n) = ?$

■ $M_2 = 10$ from (2,2) **caloron Nahm data**