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Title	球ノ幾何ニ就テ
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Citation	全国紙上数学談話会. 1935, 50, p. 1-2
Version Type	VoR
URL	https://doi.org/10.18910/74096
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Note	

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174. 球ノ幾何ニ就テ

松村宗治 (台北大)

今 $(n+2)$ 次元空間ニ於ケル球 $f, \varphi_1, \varphi_2, \cdots\cdots, \varphi_n$ ヲ考ヘ

(1) $pf + p_1\varphi_1 + p_2\varphi_2 + \cdots\cdots + p_n\varphi_n$

ナル Kugelbüschel ヲ考ヘル、茲ニ p, p_i ハ Skalar-grösizen デアリ $\varphi_1, \varphi_2, \cdots\cdots, \varphi_n$ ハ二ツ宛互ニ垂直ナルベクト百デアルトスル、今(1)が $\varphi_1, \varphi_2, \cdots\cdots \varphi_n, f$ ニ垂直ナルトキハ

$$(2)\begin{cases} p(\varphi_1 f) + p_1(\varphi_1\varphi_1) + \cdots\cdots + p_n(\varphi_n\varphi_1) = 0, \\ p(\varphi_2 f) + p_1(\varphi_2\varphi_1) + \cdots\cdots + p_n(\varphi_2\varphi_n) = 0, \\ \cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots \\ p(\varphi_n f) + p_1(\varphi_n\varphi_1) + \cdots\cdots + p_n(\varphi_n\varphi_n) = 0, \\ p(ff) + p_1(f\varphi_1) + \cdots\cdots + p_n(f\varphi_n) = 0. \end{cases}$$

トナル、而シテ今 p, p_i ハ零ニ等シクナケレバ

$$\begin{vmatrix} (\varphi_1\varphi_1) \cdots\cdots (\varphi_1\varphi_n) & (\varphi_1 f) \\ \cdots\cdots\cdots\cdots\cdots & \\ (\varphi_n\varphi_1) \cdots\cdots (\varphi_n\varphi_n) & (\varphi_n f) \\ (f\varphi_1) \cdots\cdots (f\varphi_n) & (ff) \end{vmatrix} = \begin{vmatrix} 1 \cdots\cdots 0 & (\varphi_1 f) \\ \cdots\cdots\cdots & \\ 0 \cdots\cdots 1 & (\varphi_n f) \\ (f\varphi_1) \cdots\cdots (f\varphi_n) & (ff) \end{vmatrix}$$

$$= (ff) - (f\varphi_1)^2 - \cdots\cdots - (f\varphi_n)^2 = 0.$$

即チ

$$(f\varphi_1)^2 + \cdots\cdots + (f\varphi_n)^2 = 1$$

即チ　$\cos^2\varphi_1 + \cdots\cdots + \cos^2\varphi_n = 1$

ガ成立ツ、コレ＝φ_iハ球fトφ_iトノナス角デアル。