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AN EXTREMAL PROBLEM ON THE CLASSICAL CARTAN DOMAINS, III

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1. Let $D_1, \cdots, D_N$ be the classical Cartan domains. We define the numbers n_{D_v} and λ_{D_v} as follows:

$$n_{D_v}=\begin{cases} rs, & \text{if } D_v=R_{\mathrm{I}}(r, s), \\ \dfrac{p(p+1)}{2}, & \text{if } D_v=\hat{R}_{\mathrm{II}}(p), \\ \dfrac{q(q-1)}{2}, & \text{if } D_v=R_{\mathrm{III}}(q), \\ m, & \text{if } D_v=R_{\mathrm{IV}}(m), \end{cases}$$

and

$$\lambda_{D_v}=\begin{cases} \sqrt{s}, & \text{if } D_v=R_{\mathrm{I}}(r, s), \\ \sqrt{\dfrac{p+1}{2}}, & \text{if } D_v=\hat{R}_{\mathrm{II}}(p), \\ \sqrt{q-1}, & \text{if } D_v=R_{\mathrm{III}}(q) \text{ and } q \text{ is even}, \\ \sqrt{q}, & \text{if } D_v=R_{\mathrm{III}}(q) \text{ and } q \text{ is odd}, \\ \sqrt{m}, & \text{if } D_v=R_{\mathrm{IV}}(m), \end{cases}$$

where

$$R_{\mathrm{I}}(r, s)=\{Z=(z_{ij}):\ I-Z\bar{Z}'>0, \text{ where } Z \text{ is an } r\times s \text{ matrix}\},\quad (r\leqq s),$$

$$R_{\mathrm{II}}(p)=\{Z=(z_{ij}):\ I-Z\bar{Z}'>0, \text{ where } Z \text{ is a symmetric matrix of order } p\},$$

$$\hat{R}_{\mathrm{II}}(p)=\{Z=(z_{ij}):\ z_{ij}=\sqrt{2}\,x_{ij}\ (i\neq j),\ z_{ii}=x_{ii}, \text{ where } X=(x_{ij})\in R_{\mathrm{II}}(p)\},$$

$$R_{\mathrm{III}}(q)=\{Z=(z_{ij}):\ I-Z\bar{Z}'>0, \text{ where } Z \text{ is a skew-symmetric matrix of order } q\},$$

$$R_{\mathrm{IV}}(m)=\{z=(z_1, \cdots, z_m):\ 1+|zz'|^2-2z\bar{z}'>0,\ 1-|zz'|>0\}.$$

We set

$$D=\lambda_{D_1}D_1\times\cdots\times\lambda_{D_N}D_N, \qquad n=n_{D_1}+\cdots+n_{D_N},$$

and denote the family of holomorphic mappings from D into the unit hyperball

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