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ASYMPTOTIC BEHAVIOR OF THE CURVATURE OF THE BERGMAN METRIC OF THE THIN DOMAINS

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The Riemann sectional curvature tensor of the Bergman metric of the domains that are 'thin' intersections of the (strongly) pseudoconvex domains in $\mathbf{C}^n$ with C^2 boundaries, $n \geq 2$, is asymptotically equivalent to that of corresponding Siegel domains.

1. Thin domains in $\mathbf{C}^n$. Among the bounded domains of holomorphy in $\mathbf{C}^n$ with non-smooth boundaries, we consider the ones that can be obtained as the intersection of the two or more strongly pseudoconvex domains with C^2 boundaries. Precisely speaking, a typical such domain can be represented as:

$$D = \{z \in \mathbf{C}^n \mid \rho_1(z) < 0, \ldots, \rho_k(z) < 0\}$$

where:

(1) for each $j = 1, \cdots, k$, the inequality $\rho_j(z) < 0$ defines a strongly pseudoconvex domain with a C^2 boundary, and
(2) the defining functions satisfy that

$$d\rho_{i_1} \wedge \cdots \wedge d\rho_{i_q} \neq 0 \qquad (q \leq n)$$

at every point where $\rho_{i_1} = \cdots = \rho_{i_q} = 0$ for any appropriate q.

In this paper, we would like to give a description of the asymptotic behavior of the Riemann sectional curvature tensor of the Bergman metric ([**1**]) of such domains that are so-called 'thin'. (See Definition 2.) Our results are mainly focused on the case when the boundary point is singular, because the case when the target boundary point is regular has been well settled earlier by Klembeck [**4**], (see also [**3**]).

However, this paper is substantially different from the preceding works on asymptotic behavior of the Bergman curvature, since we treat the case when the boundary is singular. Lack of smoothness of the boundary rules out the possibility of using the well-known asymptotic expansion formula of the Bergman kernel function by C. Feffermann [**2**]. But interestingly enough, even for the case of C^∞ boundaries,