Erratum

Erratum to: Axler–Zheng Type Theorem on a Class of Domains in $\mathbb{C}^n$

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We correct an inaccuracy in the statements of Proposition 1, Lemma 1, and Corollary 5 in the original publication of the article. Furthermore, we add a comment and three related references.

We start by a definition. A domain Ω is said to satisfy condition R if its Bergman projection maps $C^\infty(\overline{\Omega})$ into itself. These domains form a large class. For example, smooth bounded convex domains as well as smooth bounded pseudoconvex domains on which the $\bar{\partial}$ -Neumann operator is compact satisfy condition R (see [1, Remark, pg. 82], [3]). However, not every smooth bounded pseudoconvex domain satisfies condition R. For example, the Diederich–Fornæss worm domains do not satisfy condition R [2].

The reason for writing this correction is that we use a theorem of Bell, which requires the domain to satisfy condition R, in the proof of the main lemma, Lemma 1 below. In the main results, the condition R is automatic since the $\bar{\partial}$ -Neumann operator is assumed to be compact or the domains are convex. However, in Lemma 1, Proposition 1, and Corollary 5 we need to assume that the domains satisfy condition R. Now we state the corrected statements.

Lemma 1. *Let Ω be a smooth bounded pseudoconvex domain in $\mathbb{C}^n$ that satisfies condition R, $\phi \in C(\overline{\Omega})$, and $p \in b\Omega$ be a strongly pseudoconvex point. Then $\lim_{z \rightarrow p} \tilde{\phi}(z) = \phi(p)$.*

Proposition 1. *Let Ω be a bounded domain in $\mathbb{C}^n$ and $\psi \in C(\overline{\Omega})$. Then $\|T_\psi\|_e \leq \|\psi\|_{L^\infty(b\Omega)}$. Furthermore, if Ω is smooth bounded pseudoconvex in $\mathbb{C}^n$ that satisfies condition R and the set of strongly pseudoconvex points is dense in $b\Omega$ then $\|T_\psi\|_e = \|\psi\|_{L^\infty(b\Omega)}$.*

Corollary 5. *Let Ω be a smooth bounded pseudoconvex domain in $\mathbb{C}^n$ that satisfies condition R and the set of strongly pseudoconvex points be dense in $b\Omega$. Assume that $\phi \in C(\overline{\Omega})$ and $\lim_{z \rightarrow p} \tilde{\phi}(z) = 0$ for all strongly pseudoconvex points $p \in b\Omega$. Then T_ϕ is compact.*

References

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