**Claremont Center
for the Mathematical Sciences**

ANALYSIS SEMINAR

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GEOMETRIC CLASSIFICATION PROBLEMS WITH THE BERGMAN METRIC

by

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ABSTRACT

One of the common problems in mathematics is the classification problem: When are two mathematical structures really the same? The classification problem appears throughout undergraduate mathematics courses in different forms. For example, in an abstract algebra course, one asks when are two groups isomorphic? In a geometry course, one asks when are two surfaces isometric? In a discrete math course, one asks when are two sets bijective? The version in complex analysis is when are two domains (open, connected sets) biholomorphic to each other?

In this talk, we will begin by defining the primarily studied functions in complex analysis, the complex differentiable functions also known as the holomorphic functions. We will then study the classification problem through the Bergman kernel and the Bergman metric. Towards the end of the talk, recent progress on classifying domains and complex manifolds with Bergman metrics of constant holomorphic sectional curvature will be presented.

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Thursday, September 25, 2025 at 4:00-5:00 pm

Davidson Lecture Hall-CMC

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