

COLLOQUIUM LECTURE

**Title: Compact Domains, Parametrizability,  
and Structure Theory of Bi-meromorphic  
Transforms**

YASUYUKI KACHI (UNIVERSITY OF KANSAS)

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at Cardwell Hall

Kansas State University

Manhattan, KS 66506

**Abstract:**

I introduce global meromorphic functions, with an emphasis on implicit functions and Riemann's existence theorem. I state a major open problem - parametrizability of compactifiable domains - both analytically and algebraically (via the meromorphic function field), and also explain its partial solution (by Kobayashi-Ochiai, in the bi-holomorphic category). The difficulty of the original problem (in the bi-meromorphic category) may be due to our limited understanding of the key underlying concept of the whole subject "the bi-meromorphic equivalence". I present a new approach to get a better grasp of this concept and how this approach sheds a new light on some basic subtopics in the field such as resolution of singularities (analog in char =  $p > 0$  being open) and Cutkosky's fundamental theorem on factoring bi-meromorphic mappings. This approach partially relies on the new group (functor)  $SG_n$  with an action on the space  $S_n$  of uniformizing parameters which yields local bi-meromorphic transforms, which was formerly unknown.