Preorders and a realization theorem for the Schur class

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Inspired by recent work of Grinshpan, Kalyuzhni-Verbovetski, Vinnikov and Woerdeman, as well ideas from real algebraic geometry, we give a realization theorem which extends well known results of Agler and others to, among more notable examples, the Schur class of the polydisk, and discuss various applications.