1115-12-383 **Ron Brown** (ron@math.hawaii.edu) and **Jonathan L Merzel*** (jmerzel@soka.edu). *The Space of Real Places of R(x,y).*

The space M of places from the rational function field R(x,y) to the real numbers R is shown to be path connected. (In general these spaces of real places play an important role in studies of the real holomorphy ring and the reduced Witt ring of a field.) The possible value groups of elements of M are listed, and for each of these it is shown that the set of real places in M with any given value group (up to order isomorphism) is dense in M. Large collections of subsets of M are constructed such that any two elements of one of these collections are homeomorphic. A key tool is a homeomorphism between the space of real places of R((x))(y) and a space of certain sequences called "signatures"; these signatures are related to MacLane's construction of valuations on rational function fields. These signatures are also shown to determine "strict systems of polynomial extensions" (which in turn have been shown to be closely connected with the "complete distinguished chains" of Popescu, et. al.). (Received September 22, 2015)