



UNIVERSIDAD
DE LA FRONTERA

SEMINARIO CRUZ DEL SUR

DEPARTAMENTO DE MATEMÁTICA Y ESTADÍSTICA – UFRO

PSEUDO-REAL RATIONAL MAPS

SAÚL QUISPE

DEPARTAMENTO DE MATEMÁTICA Y ESTADÍSTICA
UNIVERSIDAD DE LA FRONTERA

Lunes 21 de Septiembre del 2015, 15h40
Auditorio Prof. Manuel López Ramírez

RESUMEN.

Let M_d be the moduli space of rational maps of degree $d \geq 2$, J. Milnor proved that this space has the structure of a complex orbifold of dimension $2d - 2$. This orbifold has a natural real structure $\hat{\mathcal{J}}$ coming from complex conjugation. The fixed points of such a real structure are called the real points and these points corresponds to the classes of equivalences of rational maps which are holomorphically equivalent to their conjugated one. The real locus is the disjoint union of two real-orbifolds: $M_d(\mathbb{R})$ and $M_d^{\mathbb{R}}$. The elements of $M_d(\mathbb{R})$ are those rational maps which are definable over the reals (equivalently, admit a reflection as automorphism) and the elements of $M_d^{\mathbb{R}}$ correspond to those rational maps which admit an anti-holomorphic automorphism but no reflections. The real-orbifold $M_d(\mathbb{R})$ has real dimension $2d - 2$ and it is connected, and J. H. Silverman has noticed that $M_d^{\mathbb{R}} = \emptyset$ if $d \geq 2$ is even and, if $d \geq 3$ is odd, then $M_d^{\mathbb{R}} \neq \emptyset$.

In this talk, we will recall the basic definitions and facts and we observe that, for $d \geq 3$ odd, the real-orbifold $M_d^{\mathbb{R}}$ is always non-connected. Moreover, we state that the group of holomorphic automorphisms of a pseudo-real rational map is either trivial or cyclic and we provide a characterization of pseudo-real rational maps in terms their groups of holomorphic automorphisms. This is joint work with Ruben A. Hidalgo.

E-mail address: saul.quispe@ufroterra.cl