

## REAL EQUIVALENCE OF COMPLEX MATRIX PENCILS AND COMPLEX PROJECTIONS OF REAL SEGRE VARIETIES\*

ADAM COFFMAN<sup>†</sup>

**Abstract.** Quadratically parametrized maps from a product of real projective spaces to a complex projective space are constructed as the composition of the Segre embedding with a projection. A classification theorem relates equivalence classes of projections to equivalence classes of complex matrix pencils. One low-dimensional case is a family of maps whose images are ruled surfaces in the complex projective plane, some of which exhibit hyperbolic CR singularities. Another case is a set of maps whose images in complex projective 4-space are projections of the real Segre threefold.

**Key words.** Matrix pencil, Matrix equivalence, Ruled surface, Segre embedding, CR singularity.

**AMS subject classifications.** 15A22, 14E05, 14J26, 14P05, 32V40, 51N15.

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<sup>†</sup>Department of Mathematical Sciences, Indiana University - Purdue University Fort Wayne, 2101 E. Coliseum Blvd., Fort Wayne, Indiana 46805-1499, USA (CoffmanA@ipfw.edu).