

## Finding $3 \times 3$ Hermitian Matrices over the Octonions with Imaginary Eigenvalues

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**Abstract.** We show that any 3-component octonionic vector which is purely imaginary, but not quaternionic, is an eigenvector of a 6-parameter family of Hermitian octonionic matrices, with imaginary eigenvalue equal to the associator of its elements.

**Keywords.** Octonions, Hermitian matrices, Imaginary eigenvalues.

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Received: February 16, 2009

Accepted: March 8, 2009