

PROPOSAL EVALUATION FORM

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PRINCIPAL INVESTIGATOR Malvina Balca	NSF PROGRAM OFFICE OF SPECIAL PROJECT
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TITLE
Mathematical Sciences: Hermite's Problem from the Periodicity of ACF Algorithms

Please evaluate this proposal using the criteria presented on the back of this review form. Continue on additional sheet(s) as necessary.

The investigator's paper [1], derived from her PhD thesis is a good starting point for continuing research and makes her quite qualified to attack Hermite's problem. Previous research time under a 1/2 time teaching release (while at Marshall University) has resulted in several papers and this leads the reviewer to believe that further advances are likely to result under the benefit of additional research support.

Perhaps computer use (in what are some very calculation-intensive iterations) might be of benefit in guiding theoretical results. An additional reviewer (see below) with greater expertise in computing may be able to give more concrete suggestions as to how a computer program that uses the ACF/GEA algorithm might aid the research.

The program of research is well thought-out and neatly presented. The reviewer was, however, somewhat disappointed to find that all three examples given in the third section were of the most simple kind (with period = 1) and would have found a treatment (no matter how cursory) of a more complicated period of some interest.

The proposed research into Hermite's problem also has relevance in two other areas of interest. The ACF/GEA is linked to the question of finding units in algebraic number fields as well as being important in giving approximations of algebraic irrationals. Previous research has already succeeded in generalising known results in addition to uncovering new ones.

In summary this seems like a well-planned approach to an intriguing problem by a competent researcher.

Identity of reviewers will be kept confidential to maximum extent possible.

OVERALL RATING: EXCELLENT VERY GOOD GOOD FAIR POOR