Project Summary

We request funding for a conference in the number theory on connections between curves, modular forms, L-functions, and computation to be held at Arizona State University. Some of the top number theorists in these areas have agreed to participate, and Arizona State University has agreed to provide infrastructural support.

Intellectual Merit:

The conference will present lectures on recent developments in number theory in the mornings, and bring together experts on related topics to encourage collaborative research in the afternoons in a workshop atmosphere. Areas of focus for the conference are hyperelliptic curves over the rationals, elliptic curves over low degree number fields, Hilbert modular forms, Siegel modular forms, and in all cases, corresponding L-functions. These are broad topics; we will pay particular attention to computationally related questions.

Broader Impact:

We are committed to having participants from all career stages, as well as having substantial participation by mathematicians from underrepresented groups. For graduate students, postdoctoral fellows, and junior faculty, the confernce can serve as a springboard for their future in the profession.

Computational results presented or worked on at the conference will be encorporated into the L-functions and Modular Forms Database, an publicly available web site which is the result of an international collaboration of many number theorists. The site provides data which is useful for mathematical research, and serves as an educational tool helping both young and experienced number theorists see some of the objects and subtle relationships which are an important part of modern number theory.