Project Summary

We propose a ten week program in general relativity to be held at the Stanford Mathematics Department and the AIM facility in Palo Alto from April 1 to June 7 of 2002. The purpose of this program is to bring together researchers with interests and expertise in the various aspects of the study of the Cauchy problem for the Einstein equations. These researchers work primarily in the areas of differential geometry, nonlinear PDE, and relativity theory. The goals of the program include solving a specific set of problems, correctly formulating other problems, understanding the interplay among the three fields of research, and introducing young mathematicians and mathematicians from outside these fields to this important area of research. There will be a total of approximately 50 participants in the program; most will participate for one to two weeks. The participants will represent a mix of senior and junior mathematicians and graduate students. At least one-half of the NSF funds will support young mathematicians, female mathematicians, and mathematicians from underrepresented groups to participate in this program.

The program will include regular talks, lecture series on particular papers and topics, and open problem sessions. A substantial number of the talks will be of an expository nature so that they will be accessible to advanced graduate students, young researchers, and those with expertise in related areas. We will encourage dialogue between the audience and the speaker. There will be an open problem session each week on problems related to the lecture topics. We also plan special focus periods of one to two weeks on particular topics. During these focus periods we will have several experts giving coordinated series of talks which highlight the current state of knowledge and future directions in a particular subtopic of the program.

In addition, we will create a web site for the program which will give a detailed look at open questions, relevant literature, background references, and links to preprints and reprints. This site will be created using the software developed for AIM's Workshop Website network (see http://www.aimath.org/PWN) and will be maintained on the AIM web site.