

**Proposal Status** | MAIN ▶**Organization:** University of Texas at El Paso**Review #1**

**Proposal Number:** 0953339  
**NSF Program:** Numeric, Symbolic, and Algebraic Computation  
**Principal Investigator:** Ceberio, Martine C  
**Proposal Title:** CAREER: Symbolic-Numeric Constraint-Based Solutions for Real-World Scientific Problems  
**Rating:** Excellent

**REVIEW:**

What is the intellectual merit of the proposed activity?

The proposed work would bring knowledge from several fields to bear on a promising technology that can benefit from further research and development. A major merit in basic science of the proposed work will be better understanding of making constraint processing systems efficient in multiprocessing environments where the individual nodes are not fully reliable. An example of such an environment might be volunteered time on personal computers, such as is done with the SETI project.

Another important aspect of the proposal is development of a Matlab toolbox for constraint processing. This is very a propos, enabling wide use of the results on all levels (for both didactic and research purposes).

The proposed work draws upon and the human resources available to the PI in an appropriate way, integrating the tasks required to complete the project well. The vertical integration of the work (from high-school activities through Ph.D. research) is a particularly strong aspect of this proposal. Based on my knowledge of past results of such activities at the PI's institution, and based on my knowledge of the PI's dedication and energy, I am confident that the project will succeed. Furthermore, the budget matches the resources requested, and the resources requested match the magnitude of the project.

The PI has an outstanding educational background. Her Ph.D. advisor is an undisputed leader in the field, and she has been very active in broad collaboration since then.

What are the broader impacts of the proposed activity?

Aside from the broad intellectual merit of the activity, a salient aspect of this proposal is its outreach to the community, which consists primarily of Hispanic citizens. Several high schools are involved in a significant way. This will raise the general intellectual level within the Hispanic community, and will also

open eyes to opportunities and increase aspirations within that community. In contrast to many proposals, this aspect of this proposal is not mere lip service: A solid detailed plan is given, and the PI already has a significant track record in these activities.

#### Summary Statement

This proposal is strong both with respect to what the work will offer the professional community and with respect to what the proposal will offer the community of minority, underrepresented, and disadvantaged persons in the geographical area of the PI's institution.

[◀ Back to Proposal Status Detail](#)

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