

3. Proposed Budget (299)

Budget Justification (299)

The PI's primary aim in applying for this grant is to secure funding for additional faculty summer salary (in lieu of teaching summer courses) and student summer salary to develop mentoring materials and conduct focused research during Summer 2021, in collaboration with an undergraduate research student working 10 hours a week from the beginning of June to mid-August. Presently, the PI is in his first year as a junior faculty member at CSUF and has access to some start-up funds for conference travel, but these funds are not available for additional faculty summer support. Furthermore, the PI does not expect any additional sources of funding during the upcoming summer and academic year.

The extremely fast-paced time frame outlined in the project necessitates extensive preparation during Spring 2021, in particular in the creation of background lecture material, preliminary investigation/calculation, and code development and documentation. During Summer 2021, the accelerated pace of research will require careful mentoring of the undergraduate, both mathematically and in relevant programming skill, requiring daily availability in addition to the PI's research efforts.

External sources of funding, particularly research grants, are extremely competitive in pure mathematics. Researchers who have been awarded previous research grants tend to present a much stronger case for being awarded funding in the future. If awarded, the PI intends to leverage the current grant as part of a strong grant application for an NSF research grant in the near future. Additionally, numerous faculty in the Department of Mathematics at CSUF have expressed strong interest in establishing summer research opportunities for undergraduate students such as a NSF Research Experience for Undergraduates (REU) program or a similar research opportunity. By bolstering his undergraduate mentorship track record, the PI hopes that he and other faculty can submit successful grants for undergraduate research funding in the future.