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I would like to strongly recommend Shashank Shalgar, currently a student working with André de Gouvêa for a postdoctoral position in Theoretical Particle Physics.

Most of Shashank's work has been in neutrino phenomenology, a field where observables are few and very difficult to measure. This has not prevented him from pursuing interesting new directions, notably his recent papers with André, Janet Conrad and Joshua Spitz on atmospheric tau detection and with André on the effects in supernovas of Majorana transition magnetic moments. André points out that in both papers the students (Shalgar and Spitz and then Shalgar) were the driving force. In the first paper, Shashank et al. demonstrate that, in principle, charged current tau production from atmospheric neutrinos can be distinguished from other neutrino species via the tau decay kinematics alone in a liquid argon TPC. This measurement, which is quite feasible in the next round of experiments, adds significantly to the potential list of observables for neutrino oscillations. In the second paper, Shashank uses a simplified 2-flavor model to explore the consequences of semi-exotic neutrino properties like magnetic moments on supernova neutrino spectra. Once again, this adds to the short list of observables and is very useful input for planning future neutrino detectors. These paper illustrates Shashank's strengths; a substantial grasp of how observational physics works and a knack for finding interesting new processes

to study (both traits which mirror André's). In addition Shashank is exceptionally adept in computational and numerical techniques, which makes numerical studies of non-linear interactions in supernovas possible.

In addition to his theoretical work, Shashank is one of the top three instructors out of 90 students in our program and was by far the top student in my particle physics course when he first came to NU.

As a neutrino physicist, I find Shashank to be a great colleague, he has original ideas and the computational skills to carry them through. In addition, Shashank is a clear and enthusiastic physics communicator, both as a master teaching assistant and as a colleague in informal discussion and will add to the intellectual environment of any group he joins. I rank him at the top of our graduate students at Northwestern and recommend him very enthusiastically.

Sincerely,

A handwritten signature in blue ink, consisting of a stylized 'H' followed by a long, horizontal, slightly wavy line.

Heidi Schellman  
Professor and Chair  
Department of Physics and Astronomy  
Northwestern University