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Enhancing Diversity at the PhD Level in Physics: The Fisk-Vanderbilt Masters-to-PhD Bridge Program[1]

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We very briefly review the current status of underrepresented minorities in the physical sciences: The underrepresentation of Black-, Hispanic-, and Native-Americans is an order of magnitude problem. We then describe the Fisk-Vanderbilt Masters-to-PhD Bridge program as a successful model for effective partnerships with minority-serving institutions toward addressing this problem. Since 2004 the program has admitted 42 students, 37 of them underrepresented minorities (60% female), with a retention rate of 92%. The program is on pace to become the nation's top producer of underrepresented minority PhDs in physics, astronomy, and materials science. Already, the program leads the nation in master's degrees in physics for African Americans, and is one of the top ten producers of physics master's degrees among all US citizens in general. We summarize the main features of the program including two of its core strategies: (1) partnering a minority-serving institution and a major research university through collaborative research, and (2) using the master's degree as a deliberate stepping stone to the PhD. We also specifically discuss one of the emerging core theories of the program: the concept of students with "unrealized or unrecognized potential." We discuss our methods to recognize and select for unrealized potential during the admissions process, and how we cultivate that unrealized potential toward development of successful scientists and leaders.

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