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Universities Reaching Outwards: Science Education Partnerships with Urban School Systems

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The goals of this talk are to: (1) describe how universities, physics departments, and individual faculty can partner with urban school systems to benefit K-16 students, teacher education programs, and university instructors, (2) summarize research on effective university-school system education partnerships, and (3) offer advice and share lessons learned so that university partners can avoid common pitfalls and maximize the potential for collaborative success. Possible areas of university-school collaboration include resident teachers, curricular review, early teaching experiences, demo sharing sessions, ongoing professional development, on- and off-campus science outreach, RET programs, science education resource centers, and others. University-school educational partnerships offer numerous benefits but can be challenging to implement and maintain. Research shows that most successful partnerships possess the following characteristics: mutual self-interest, participant commitment, mutual trust and respect, shared decision-making, information sharing, and ongoing evaluation. K-16 course and curriculum redesign is a specific issue that has its own unique set of contextual factors that impact the project's chance at success, including available materials, administrative support, formative assessments, pilot-testing and instructor feedback, and ongoing professional development. I have learned a number of lessons in own science education collaborations with the Baltimore City Public School System, which is an urban school system with 200 schools, 84,000 students, and 10,700 teachers and administrators. These lessons pertain to: communication, administrative power, and the structure of the school system; relevant contextual factors in the university and K-12 schools; and good old-fashioned common sense.¹ Specific advice on K-16 science education partnerships will be provided to help universities increase student and instructor satisfaction with their physics and teacher education programs, maintain a positive and mutually beneficial relationship with local schools, and improve science education at all levels of instruction.

¹Common sense is encouraged, but not required, to attend the invited talk.