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Bridgewater State University Physics Builds Photonics and Optical Engineering BS Degree Program ED DEVENEY, ELIF DEMIRBAS, SAMUEL SERNA, THOMAS KLING, Bridgewater State University — Over the past twenty years Bridgewater State University (BSU), Bridgewater MA, has built a thriving undergraduate Physics department and program recognized for the numbers of graduating majors, innovative STEM teaching and retention initiatives, awarded undergraduate research and highly needed high school physics teachers. Strategic emphasis over that period on advanced, or Beyond first Year (BFY), laboratory experiences, optics based research interests (laser cooling and trapping and optical tweezers), as well three new faculty hires have resulted in a niche of graduates with strong quantum, optics and engineering backgrounds who have gone on to graduate schools and, significantly, workforce for local photonic and optics based industries. In this talk, we chronicle these developments as they have catalyzed recent capital equipment awards, collaborations and connections to MA state and federal programs in photonics and quantum technologies. Recently, BSU Physics has added a public four-year BS program in Photonics and Optical Engineering a result threaded throughout the talk. We detail, why, how and what we did to get to this as an example for other departments looking to expand in similar ways.

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