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A passively pumped cell for cold and ultracold atoms[1] K.J. HUGHES, A. BROWN, Triad Technology, Inc., T. ARPORNTHIP, C.A. SACKETT, University of Virginia — The demanding vacuum environment required by many techniques in AMO physics is one barrier to commercialization of these technologies. Even some research applications are hampered by the magnetic and electrical interference coming from conventional vacuum pumps and metal vacuum fittings. To help address these problems, we have developed an ultra-high vacuum cell that uses only passive pumping techniques and requires a minimal amount of metal. Vacuum in the cell was adequate to implement a rubidium magneto-optical trap and to maintain it over an extended period of time without active pumping. The demonstrated cells are simple and very compact, but a wide variety of configurations can be manufactured using similar techniques. We will present our results and discuss strategies for the future direction of this research.

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