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Metastable Atom Detection Using Solid N_2[1] WILLIAM MCCONKEY, WLADEK KEDZIERSKI, DRAGAN LUKIC, University of Windsor — Over the years our laboratory has been a center for the use of rare-gas matrices at temperatures below 70K in the detection and study of low energy atomic and molecular metastable particles [see Kedzierski et al, Can J Phys, 91, 1044, (2013) for Refs]. Recently we have extended this work to study the use of a solid nitrogen matrix at temperatures below 35K as a detector of O(^{1}S) atoms. This proves to be at least as sensitive as any rare gas matrix though the lifetime of the excimer formed in the matrix is somewhat longer ($\sim$ 20 μs) than what is observed in a Xe matrix for example. The detailed performance of the detector as a function of temperature and other parameters will be presented at the conference.

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