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Applications of the remarkable pressure effect on electron beam production by cooled LiNbO3 crystals in dilute gases STEPHEN SHAFROTH, University of NC at Chapel Hill, JAMES BROWNRIDGE, State University of NY at Binghamton — In 2001 we reported on focused, electron beams accelerated away from cylindrical $LiNbO_3$ crystals in dilute gas on cooling with the – z base exposed. These beams consisted of clusters of electrons arising from positive ion bombardment of the crystal on cooling. Even though the energy of the clusters of electrons in the beam changes with time and crystal temperature, it is nearly constant over periods of a few minutes. Remarkably, the maximum electron energy is strongly pressure dependent (more than a factor of two.) Here we show how this allows production of maximum energy bremsstrahlung[1]; how the pressure effect influences electron beam energy in transport through thin tubes and how it effects electron beam intensity and focusing. 1. J. D. Brownridge and S. M. Shafroth, Appl. Phys. Letts. 85, 1298 (2004) and http://www.binghamton.edu/physics/brownridge.html

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