Enhanced Narrow-band, Coherent Emission from a Current Source Immersed in Cut-off of a Plasma-like Medium MIN SUP HUR, UNIST, BERNHARD ERSFELD, ADAM NOBLE, Scottish Universities Physics Alliance and University of Strathclyde, HYYONG SUK, GIST, DINO JAROSZYN-SKI, Scottish Universities Physics Alliance and University of Strathclyde — In plasma-like media sharing a similar dispersion relation, there exists a cut-off frequency to make the wave number zero. This particular situation has been understood classically in a way that the radiation impedance becomes infinite, resulting in a total reflection of an incident wave. However, in this framework of understanding the cut-off, a pure current source immersed in the cut-off region leads to infinite radiation power from Ohm’s law. This is obviously unphysical and requires a different approach to address the problem. In this presentation, we show that by solving the driven time-dependent Schrödinger equation, the radiation at the cut-off frequency can be selectively enhanced by several times the pure vacuum-emission. Important question here is whether such current sources are available in practical systems. We find that quasi-current sources are actually ubiquitous as long as the conversion efficiency from the current driver to the radiation emission is low. We demonstrate two such cases by PIC simulations; THz radiation from a plasma driven by colliding laser pulses, and THz from two-color lasers enclosed by a tapered waveguide. We also discuss the previous experimental results in terms of this enhanced emission concept.