Low temperature plasmas science has enabled a host of engineering innovations. The basis of advanced electric propulsion is anchored in plasma science. Here we briefly survey the field of low temperature plasmas and then focus on a specific application—plasma propulsion. The motivation for this technology is discussed along with the operation physics of two key engine systems. The mission enabling nature of the technology is highlighted with a brief survey of past, present and future missions. Advanced propulsion requirements as specified by NASA are then discussed along with an overview of physics roadblocks that must be resolved for realization of high power operation. Research aimed at addressing these roadblocks is highlighted with some emphasis on ongoing efforts at Michigan.

Bio:
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