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# Miniaturised-CXT

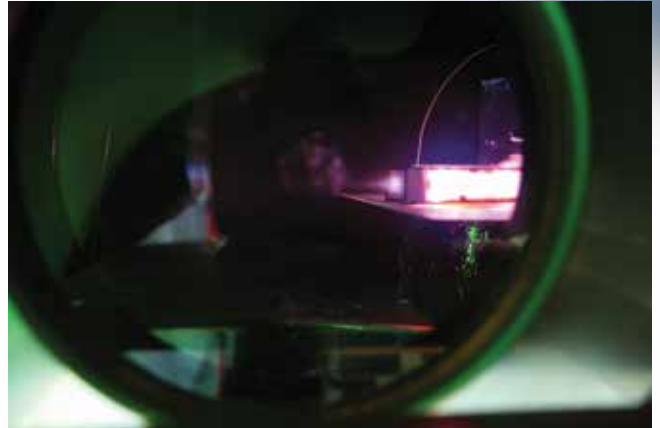
## Revolutionary design for electric propulsion of small satellites

Current commercial technology cannot provide cheap and efficient electric propulsion for small satellites, limiting their potential to modify their orbit, avoid collisions in space, and propel to avoid or force orbital decay.

Cheap and efficient propulsion systems based on M-CXT technology will enhance small satellites missions, allowing extended orbital life, reliable attitude control and advanced operational functions such as satellite formation flying.

The Miniaturised - Charge Exchange Thruster (M-CXT) is a new type of electric propulsion device for spacecraft currently in development. **The M-CXT has high promise for extreme fuel and power efficiency** even at this early development stage. **The design is also very simple and robust.**

This technology has direct applicability to CubeSats that can be as small as 10x10x10cm with a mass of a few kilograms. Furthermore the M-CXT can be scaled using larger area footprint on the outside surface making it suitable for larger satellites.



Intrinsic neutralisation of the propellant through charge exchange reactions is novel and gives the M-CXT a large advantage over conventional electric propulsion units which require additional and often bulky neutralisation units.

Unlocking the ability of a satellite to modify its own orbit allows for a variety of sophisticated applications. The M-CXT is highly flexible, and can be used in short bursts as would be required for attitude control or formation flying. The M-CXT could also be used for sustained duration operation as required for orbit station keeping and deep space exploration.

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Alternatives such as electric propulsion have been in research and use for more than 50 years, with the traditional Gridded and Hall thrusters having been predominantly used. They have several disadvantages, such as the need for external neutralisation sources and accelerating grids, which demand high power and prevent their miniaturisation.