Electron Guns for Detecting Space Objects and Movements

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The electron gun
The control system
Block scheme of the gun
Astrophysics in the laboratory


Underexpanded jet, Ar in He ($Ma = 29, Re = 3000$)

Astrophysics in the laboratory
Development & applications

**Incubator:** 3 persons - a physicist, an electronic engineer and a mechanical engineer to design and build a few new prototypes of electron guns of different dimensions for different applications.

E.g.: current average cost of an EG for general research purposes: 
$$\approx 50,000 \text{ Euro}$$

Our aim: to reduce the cost to $$\approx 10,000 \text{ Euro}$$

**Foreseen R&D cost:** $$\approx 100,000 \text{ Euro}$$

Decreasing the scale:

- nuclear and atomic laboratories, particle accelerators
- welding, electron erosion
- atrophysics in the lab *(achieved!)*
- space science
- electronic microscopes
- SED surface-conduction electron-emitter display