

CAS course on "Introduction to Accelerator Physics", 22 September - 05
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This presentation outlines the many ways that the initial beam can be made for particle accelerators. Brief introductions to plasma physics and beam formation are given. Thermionic and photo emission electron guns, with both DC and Radio Frequency (RF) acceleration are outlined. Positive ion sources for producing H⁺ ions and multiply charged heavy ions are covered. Hot cathode filament sources and cold cathode sources are explored. RF discharge sources (inductively coupled, microwave and ECR) are discussed, as are laser, vacuum arc, and electron beam sources. The physical principles of negative ion production are outlined and different types of negative ion source technologies are described. Polarised particle sources are mentioned briefly.

Presenter: FAIRCLOTH, Dan