Contribution ID: **256** Contribution code: **WEP024** Type: **Poster Presentation**

Design study of novel deuteron cyclotron auto-resonance accelerator

Wednesday 13 August 2025 16:00 (2 hours)

A novel deuteron cyclotron auto-resonance accelerator (dCARA) is described here. It is predicted to produce a 40-MeV, 125 mA CW deuteron beam, with notable features including continuous acceleration without bunching for good beam stability, high efficiency, wide beam aperture, and an exceptionally short length of 1.6 meters. Such an accelerated beam can be used to produce the intense neutron flux via breakup of deuterons on a low-Z target. It is estimated that 5-10 small dCARA-based modules could provide the same level of transmutation as one acceleration driven system (ADS) employing a GeV-level 25-MW linac. Other applications of dCARA include medical isotope production system, or fusion prototypic neutron source for testing inner-wall materials for a future fusion power reactor.

Please consider my poster for contributed oral presentation

Yes

Would you like to submit this poster in student poster session on Sunday (August 10th)

No

Footnotes

Funding Agency

I have read and accept the Privacy Policy Statement

Yes

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Session Classification: WEP: Wednesday Poster Session

Track Classification: MC3 - Novel Particle Sources, Acceleration Techniques, and their Applications