



Contribution ID: 2350 Contribution code: WEPM075

Type: **Poster Presentation**

## High-power modular GaN based power supply for MedAustron scanning magnets

*Wednesday, 10 May 2023 16:30 (2 hours)*

MedAustron is a synchrotron-based ion therapy center in Wiener Neustadt, Austria, constantly working towards the performance improvement of cancer treatment. A major improvement opportunity comes from the scanning magnets system –a crucial element of dose delivery system at MedAustron - that is influenced by the bandwidth and power density of the magnet power supplies. Therefore, a novel highly modular power converter, based on the latest GaN technology is being developed to tackle the aforementioned requirements. One sub-module of this power supply is based on two H-bridges that are operated in hard parallel and are integrated into a standardized 19"euro-crate card form factor with target output specifications of 300V and 33A. This design also includes a 4th-order output Bessel filter to meet the ripple requirements for clinical operation. Furthermore, those sub-modules offer the possibility of being connected, cascaded or interleaved, in order to meet different output power requirements, providing a high modularity aspect. The status of this development in terms of requirements, global topology, filter structure, modulation strategy and control structure is presented.

### Funding Agency

### Footnotes

### I have read and accept the Privacy Policy Statement

Yes

**Primary author:** MARGREITER, Thomas (EBG MedAustron GmbH)

**Co-authors:** DE CESARIS, Ivan (EBG MedAustron GmbH); GADNER, Thomas (MCI Management Center Innsbruck); INCURVATI, Maurizio (MCI Management Center Innsbruck); PELLETIER, Sebastien (EBG MedAustron GmbH); TEIXEIRA, Rui (EBG MedAustron GmbH)

**Presenters:** MARGREITER, Thomas (EBG MedAustron GmbH); TEIXEIRA, Rui (EBG MedAustron GmbH)

**Session Classification:** Wednesday Poster Session

**Track Classification:** MC7: Accelerator Technology and Sustainability: MC7.T11: Power Supplies