



Contribution ID: 1819 Contribution code: TUPR82

Type: **Poster Presentation**

## Novel radiation durable composite materials

*Tuesday, 21 May 2024 16:00 (2 hours)*

NanoSonic has demonstrated advanced high radiation durable composite and polymeric materials for applications in radio frequency devices, cryomodule gate valves, and seals for beam dumps. Through additive and scalable manufacturing techniques, the novel radiation tolerant polymers for use within accelerator components and subsystems have shown potential to replace current state of the art materials which degrade through radiation induced brittle failure and other failure mechanisms. NanoSonic's composites have undergone both shielding and exposure radiation testing at low doses of proton, iron, and electron irradiation (up to 27 Gy) and are currently being tested for ultra-high radiation exposure (up to 20.0 MGy). No remarkable mechanical changes have been observed after low dose testing for NanoSonic's materials. These novel composite materials will reduce maintenance and replacement frequency offering the potential for significant cost reductions and operational downtime.

### Footnotes

### Funding Agency

### Paper preparation format

Word

### Region represented

North America

**Primary author:** BRAND, Courtney (NanoSonic, Inc.)

**Co-authors:** SPARKS, Emma (NanoSonic, Inc.); LALLI, Jennifer (NanoSonic, Inc.)

**Presenter:** BRAND, Courtney (NanoSonic, Inc.)

**Session Classification:** Tuesday Poster Session

**Track Classification:** MC7: Accelerator Technology and Sustainability: MC7.T31 Subsystems, Technology and Components, Other