

Heavy ions in therapy and space

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Heavy ion biophysics is an emerging research field with two main applications: cancer radiotherapy and space radiation protection. Both fields are rapidly growing. Particle therapy is generally acknowledged as a cutting edge methodology, and solid plans for the first heavy ion therapy center are established in USA within the cancer moonshot program. On the other hand, the commitments of the space agencies toward exploration make urgent to tackle the problem of radiation exposure, a potential showstopper for manned colonization of the Solar system.

Both particle therapy and space radiation fields share many common topics, and we will give three examples: light flashes, radiation-induced carcinogenesis, and hibernation. We will argue that ground-based accelerator research is essential for solving both problems.

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