

# Workshop on Xenon Detector $0\nu\beta\beta$ Searches: Steps Towards the Kilotonne Scale

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## RF carpets

*Thursday, 26 October 2023 14:40 (25 minutes)*

Radio frequency (RF) carpets are ion beam transport devices that have become ubiquitous in nuclear science. They first appeared in large volume gas cells where they allowed the efficient transport at pressures around 100 mbar of thermalized radioactive ions produced in-flight. Then, more recently, they started to be used at lower pressures, in the 1-10 mbar range, to dissociate molecular contaminants from radioactive ion beams, as well as part of gas catcher-based cooler and buncher devices, and in differentially pumped extraction systems of large volume gas cells. They are also projected to be used at higher pressures, in the 1-10 bar range, to transport barium ions in xenon gas. I will discuss the working principle of RF carpets as well as these various applications.

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