



# Vibration Monitoring System for the RACF Data Center at BNL (Poster Contribution)

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# Summary / Highlights

- RHIC & ATLAS Computing Center (RACF) is a 15k sq. ft. facility that hosts 400 racks of equipment and 9 large scale robotic tape silos with 50 PB of line storage (with 20k spinning drives in total) and 70 PB on tapes (180 tape drives, 60k tapes in total).
- The facility's main cooling system is based on Liebert CRAC units and pressurized raised floor in various configurations (up to 30 inch deep in the largest and most recently added 6.4k sq. ft. area called the CDCE).
- The rigid structure of the raised floor of the facility allows long distance propagation of mechanical vibration caused by the CRAC units (especially those that start to go off balance), large groups of disk arrays and clusters of cooling fans in compute nodes that in some cases may result in interference with normal operation of IT equipment, equipment lifetime reduction and even equipment failure due to excessive levels of vibration that might not be noticed immediately in such a large facility in the absence of constant monitoring of the situation.
- The results of initial deployment of such a system based on high sensitivity Lansmont tri-axial MEMS accelerometers in the CDCE area (provided with 3 of such vibration probes for a start) is presented and the first findings are reported.
- Overall architecture of a larger scale vibration monitoring system that would span across multiple areas of the facility is shown & the related future plans are discussed.