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Speed Poster: Very Large Acceptance compact Storage Ring to study ultra-short pulses of electron beam with wide momentum spread

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The Very Large Acceptance compact Storage Ring project (VLA cSR) is an organic part of the Helmholtz Association Accelerator Research and Development (ARD) program foreseeing a "Helmholtz distributed ARD Test Facility"ATHENA ("Accelerator Technology HElmholtz iNfrAstructure"). Research and developments on laser plasma acceleration are pursued with high priority in frame of German national ARD activities and shall clear up key issues on the feasibility of new generation of very compact, cost-effective accelerators and sources of Synchrotron radiation for present and future users.
The proposed test ring shall clear up some open questions on possibility of storage of ultra-short bunches in a femtosecond pulse scale injected after laser wake-field accelerators. Also study of stability conditions of large momentum spread electron beams is foreseen in future ring experiments.
The FLUTE THz Facility at Karlsruhe Institute of Technology (KIT) will provide steady and reliable injection of ultra-short pulses of electrons into proposed VLA ring.
The chosen energy range (50 to 500 MeV) would allow to distinguish short term betatron oscillations in a nanosecond time scale as well as synchrotron motion (millisecond time scale) from synchrotron radiation damping effects which are very slow (tens of seconds) at 50 MeV

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