Retraction: Control of Damping Partition Numbers in a Ring Accelerator with rf Electromagnetic Fields [Phys. Rev. Lett. 110, 154802 (2013)]

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DOI: 10.1103/PhysRevLett.111.109901

PACS numbers: 41.60.Ap, 41.75.Ht, 41.75.Lx, 99.10.Cd

In the Letter, we found a fatal error in particle tracking simulation and we wish to retract it. In the simulation code CETRA [1], the electric and magnetic fields in the newly developed function of the coupling cavity were incorrectly described in the left-handed coordinate system, and the cancellation between the electric and magnetic terms pointed out in Refs. [2–4] did not occur in our simulation due to this wrong coordinate system. Before submitting the paper, we checked that the symplectic condition was satisfied; based on this check, we thought that the code was correct. Then, we recently found that the symplectic condition holds independently of the coordinate system and it is not a necessary and sufficient condition for validating the simulation. After correcting the code by changing the coordinate system to the right-handed one, we confirmed that a pair of coupling cavities cannot control the emittance under the condition used in the paper and that the results in the Letter are incorrect, at least under the proposed condition.

We thank Dr. Gennady Stupakov (SLAC) for bringing the error to our attention.

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