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Latest updates on JSPEC –an IBS and electron cooling simulation program

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JSPEC (JLab Simulation Package on Electron Cooling) is an open-source C++ program developed at Jefferson Lab, which simulates the evolution of the ion beam under the influence of both IBS and electron cooling effects. In this paper, we will report the latest updates to JSPEC. Firstly, we have added theoretical and numerical models that simulate the effect of the electron beam dispersion on non-magnetized cooling. Secondly, the cooler can now be treated as an element with length, rather than a thin lens. This change will impact the modeling of the ions and the electrons in the cooling rate calculation for both magnetized and non-magnetized cooling. Numerical results will be provided to demonstrate the performance of the new models.

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Footnotes

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