

## **Generation of Emittance Conserving Non-KV Distributions in Periodic Focusing Channels,**

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The analytical method how to construct non-trivial (non-K-V) phase space equilibria for non-conservative Vlasov-Poisson systems has been described earlier [1]. Given a uniform focusing system, an infinite variety of self-consistent phase space density distributions can be constructed. If these distributions are rms-matched to an equivalent periodic focusing channel, their self-consistent behavior is preserved. This is shown by results of simulations assuming high current beam transport cases at  $\sigma_{\text{zero}} = 60 \text{ deg}$  zero current tune and  $\sigma = 15 \text{ deg}$  depressed tune. In the case of an interrupted solenoid channel, all changes of the rms emittance are purely oscillating (non-growing). Using one million simulation particles we obtain relative emittance fluctuation amplitudes less than 0.0002.

[1] Particle Accelerators 39, pp. 219-249 (1992).