Bologna Workshop on:
CFT AND INTEGRABLE MODELS
and their applications from gauge/gravity dualities to statistical mechanics and quantum information

Contribution ID: **330** Type: **Poster**

Confinement of solitons in the double sine-Gordon model

Tuesday 2 September 2025 14:00 (30 minutes)

The double sine-Gordon model is the non-integrable deformation of the standard sine-Gordon model caused by the cosine perturbation with the frequency reduced by the factor of 2. It was showed by Delfino and Mussardo [1], that this perturbation induces confinement of the sine-Gordon solitons, which become coupled into the 'me- son'bound states. I calculate [2] the meson masses in the weak confinement regime, which corresponds to the small deformation of the sine-Gordon model. It is shown in particular, that there is no qualitative difference between mesons and breathers in this regime: the sine-Gordon breathers slightly deformed by the perturbation term, smoothly transform into mesons upon increase of the sine-Gordon coupling constant.
References
[1] G. Delfino, and G. Mussardo, Nucl. Phys. B 516, 675 (1998).
[2] S. Rutkevich, SciPost Phys. 16, 042 (2024).

Author: RUTKEVICH, Sergei (Retired from Bergische Universität Wuppertal)

Presenter: RUTKEVICH, Sergei (Retired from Bergische Universität Wuppertal)

Session Classification: Posters