

## Integrable Lagrangians and Picard modular forms

*Thursday, September 5, 2019 3:15 PM (45 minutes)*

We consider first-order Lagrangians whose Euler-Lagrange equations belong to the class of 3D dispersionless integrable systems. Our main results can be summarised as follows:

- (1) A link between integrable Lagrangians and Picard curves/Picard modular forms studied by E. Picard as far back as in 1883 is established.
- (2) A parametrisation of integrable Lagrangian densities by generalised hypergeometric functions (solutions of the Picard-Fuchs system governing periods of Picard curves) is obtained.
- (3) Conjectured theta representations and power series expansions of the integrable Lagrangian densities are proved.

(based on joint work with F. Cl'ery A. Odesskii and D. Zagier)

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