



A Non-Profit Association of a Learned Society

International Society of Nonlinear Mathematical Physics

[isnmp.de](http://isnmp.de)

---

## A Talk at the 2nd ISNMP Conference

Bad Ems, 28 June to 4 July 2026

### Regular Session:

**Speaker:** Irina Bobrova (Technische Universität Berlin, Berlin, Germany)

**Title:** *On a non-commutative  $q$ -PVI system*

**Abstract:** We consider a non-commutative analogue of the celebrated  $q$ -PVI system introduced in the paper by Jimbo and Sakai. This system later appeared in Sakai's classification of discrete Painlevé equations, where surface theory was applied. Our non-commutative analogue is derived from a birational representation of the extended affine Weyl group of type  $D_5^{(1)}$ , which we postulated. To obtain this birational representation, we extend Sakai's surface theory and apply it to the non-commutative  $q$ -PVI system. In this talk, we discuss a non-commutative generalisation of Sakai's surface theory and its application to the non-commutative  $q$ -PVI system.