Three Lectures on the Terwilliger algebra of a (P and Q)-polynomial association scheme

Tatsuro Ito
Anhui University

First Lecture: (P and Q)-polynomial association schemes and the Leonard theorem

1. The definition of a (P and Q)-polynomial association scheme
2. Examples (Bannai's list)
3. The Leonard theorem
4. The Terwilliger algebra and its principal module

Second Lecture: L-pairs, TD-pairs and the TD-algebra

1. L-pairs and TD-pairs
2. The TD-relations and the TD-algebra
3. The weight space decomposition and the augmented TD-algebra
4. TD-pairs and the quantum affine algebra $U_q(\widehat{\mathfrak{sl}}_2)$

Third Lecture: Toward the classification of (P and Q)-polynomial schemes

1. The classification of TD-pairs
2. The present status of the classification of (P and Q)-polynomial schemes
3. Irreducible T-modules of endpoint 1, 2