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*Phase retrieval of evolving signals from space-time samples*

Assume that  $f \in \mathbb{R}^n$  is an unknown function evolving under the action of an operator  $A$  on  $\mathbb{R}^n$  such that at time  $n$  the signal evolves to  $f_n = A^n f$ . Let  $\Omega \subset \{1, 2, \dots, n\}$ . We consider the problem of finding conditions on  $A, \Omega$  and  $L_i$  such that any  $f \in \mathbb{R}^n$  can be uniquely determined up to a sign from the unsigned samples

$$Y = \{|f(i)|, \dots, |A^{L_i-1} f(i)| : i \in \Omega\}.$$

This talk is based on the joint work with Akram Aldroubi and Ilya Krishtal.