



ining and Developme

## **PLUS+ TRAINING AND DEVELOPMENT PROGRAM: Four Assorted Quantum Pieces**

DR. KAROL ŻYCKOWSKI

April 27, 2021

10:00 to 12:00

Online (Zoom)

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### **Talk 2. Quantum chaos for open systems: Universal spectra of random Lindblad operators**

The spectrum of generic superoperators, corresponding to random stochastic operations, displays a universal behaviour: it contains the leading eigenvalue  $\lambda=1$ , while all other eigenvalues are restricted to the disk of radius  $R<1$ . In the case of generic dynamics in continuous time, we introduce an ensemble of random Lindblad operators, demonstrate its spectral features including the lemon-like shape of the spectrum in the complex plane, and explain them with a non-hermitian random matrix model [2]. We show how such spectra are modified due to superdecoherence, which leads to Kolmogorov operators, which generate Markovian evolution in the simplex of classical probability vectors. ?

[2] J. Czartowski, D. Goyeneche, M. Grassl and K. Życzkowski, Iso-entangled m

tually unbiased bases, symmetric quantum measurements

Due to recommendations in place to contribute containing the spreading of COVID-19, th  
Theory Lectures will be carried out remotely via Zoom. In case you want to receive  
n invitation to attend the online session, you can send an email to [Alba.Berenguer@icfo.eu](mailto:Alba.Berenguer@icfo.eu)

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