

# Time Resolved Pump-Probe Spectroscopy of Quantum Condensed Matter - Some Triumphs, Challenges and Prospects

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## **Abstract**

Thanks to the advent of high powered femtosecond and attosecond pulsed lasers, time resolved pump-probe spectroscopy is now a flourishing research frontier. In this talk I will review some of the major developments in this field, and also the challenges and the prospects for its future, limiting myself to time resolved studies of \*quantum condensed matter\*. The review will no doubt be from my own limited perspective, and will perhaps focus more on the theoretical progress and challenges involved in \*understanding\* the complex non-equilibrium phenomena involved, especially in the context of strongly correlated quantum matter.