



TRR 80 Sonderseminar

Am Mittwoch, den 23. Mai um 13:00 Uhr

spricht

Dr. Federico Cilento

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über das Thema

***The Phase Diagram of $\text{Bi}_2\text{Sr}_2\text{Ca}_{0.92}\text{Y}_{0.08}\text{Cu}_2\text{O}_{8+d}$ cuprate
superconductors revealed by non-equilibrium optical spectroscopy***

Superconductivity in copper-oxygen based compounds is attracting much interest since 25 years of scientific efforts; nevertheless, many aspects are still subject of debate. By a novel time-resolved optical spectroscopy, I face the problem of high-temperature superconductivity from the non-equilibrium point of view. The time-resolved optical signal of several $\text{Bi}_2\text{Sr}_2\text{Ca}_{0.92}\text{Y}_{0.08}\text{Cu}_2\text{O}_{8+d}$ samples, differing for the oxygen content, revealed marked difference through the doping-temperature phase diagram of the compound. Thanks to models describing the evolution of the optical properties in both the spectral and the temporal domains, information about the electron-boson coupling responsible for Cooper Pair formation in $\text{Bi}_2\text{Sr}_2\text{Ca}_{0.92}\text{Y}_{0.08}\text{Cu}_2\text{O}_{8+d}$ have been extracted. In particular, the evidence is that of a strong electron-boson coupling with bosons of electronic origin. The time-resolved optical signal in the pseudogap phase reveals more complex than that observed in the normal state phase, and is interpreted assuming a temperature-dependent electron-boson coupling. The experimental evidences collected in the normal state, pseudogap state and superconducting state allowed to formulate a phase diagram for the $\text{Bi}_2\text{Sr}_2\text{Ca}_{0.92}\text{Y}_{0.08}\text{Cu}_2\text{O}_{8+d}$ compound based entirely on evidences at non-equilibrium.

Gäste sind herzlich willkommen.

Der Vortrag findet im Seminarraum S-403 / Institut für Physik, Universität Augsburg statt.

Gastgeber: Dr. Joachim Deisenhofer
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