



21世紀COE「トポロジー理工学の創成」セミナー

第120回エンレイソウの会

場 所： 工学部3階 A3-62 (物理工学系会議室1)

日 時： 平成19年 11月29日(木曜日)

11:00 ~ 12:30

講演者： *Prof. Alexander M. Gabovich*

(Institute of Physics, National Academy of Sciences of Ukraine)

題 目： 『**Pseudogap-Like Features in Tunneling Spectra of High- T_c Cuprates as a Manifestation of Charge Density Waves**』

要 旨 : Temperature, T , variations of the tunnel conductance $G(V)$ were calculated for junctions between a normal metal and a spatially inhomogeneous superconductor with a dielectric gap on the nested sections of the Fermi surface or between two such superconductors. The dielectric gapping was considered to be a consequence of the charge density wave (CDW) appearance. Spatial averaging was carried out over random domains with varying parameters of the CDW superconductor (CDWS). The calculated tunnel spectra demonstrate a smooth transformation from asymmetric patterns with a pronounced dip-hump structure (DHS) at low T into those with a pseudogap depletion of the electron densities of states at higher T in the vicinity or above the actual critical temperatures of the superconducting transition for any of the CDWS domains. Thus, it is demonstrated that both DHS and the pseudogapping are manifestations of the same phenomenon. A possible CDW-induced asymmetry of the background contribution to $G(V)$ is also touched upon. The results explain the peculiar features of $G(V)$ for $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+x}$ and other related high- T_c cuprates.

エンレイソウの会連絡先

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