

coupling also in a prototypical cuprate high-Tc superconductor YBa₂Cu₃O_x at temperatures dramatically exceeding the bulk T_c. This experiment presents a powerful demonstration of superconducting pairs forming already above T_c in the pseudogap state. This work (Dr. Dubroka is the principal author of this article) will soon appear in *Physical Review Letters*. Apart from these two major original works Dr. Dubroka has published a comprehensive review on the pseudogap phenomena in high-Tc cuprates. A forte of this very interesting review is that infrared studies of the interlayer response are analyzed in the context of other experimental probes including photoemission spectroscopy and neutron scattering. This review has appeared in *The European Physics Journal* in 2010.

Chapter 5 of the thesis is dedicated to the studies of recently discovered pnictide high-Tc superconductors. Dr. Dubroka has performed some of the first if not the first spectroscopic studies of this class of materials (*Physical Review Letters* 2008). All major inferences of this work including the magnitude of the energy gap and the conclusion of unconventional order parameter have later been confirmed by other experimental groups. Dr. Dubroka has also obtained crucial results on the interplay of superconductivity and magnetism in the pnictides. Firm evidence for coexistence of superconductivity and magnetism is a fairly broad region of the phase diagram discovered by Dr. Dubroka has had a major impact for the development of credible theoretical scenarios of the pnictide superconductivity. These works have been published in *Nature Materials* 2009 and in *Physical Review Letters* 2010. Yet another publication in *Physical Review B* in 2010 provides important experimental details on the multi-gap nature of the superconducting state in this class of materials.

The works of Dr. Dubroka are at the center of discussions at various international conferences. He is frequently invited to give talks at conferences on the physics of unconventional superconductors. I have had a chance to attend some of his talks. His talks are exceptionally clear and trigger interesting discussion.

In summary, a Habilitation thesis submitted by Dr. Dubroka clearly testifies that he is one of the brightest young experimentalists working in exceptionally competitive area of correlated electron systems. He has been able to identify and solve a number of important problems central to the understanding of the physics of strong correlations. Adam's experimental discoveries have stimulated significant theoretical developments.

Sincerely,



D.N. Basov
Professor of Physics
Department Chair
University of California, San Diego