

**Dmitri N. Basov**  
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**a. Professional Preparation.**

Moscow Physical Engineering Inst.	Moscow	Physics	M.Sc.	1988
Lebedev Physics Institute	Moscow	Physics	Ph.D.	1991
McMaster University	Ontario	Physics	Postdoc	1992-96

**b. Appointments.**

2015 – present	Higgins Professor of Physics, Columbia University, New York, NY
2010-2015	Chair, Department of Physics, UCSD, La Jolla, CA
2001-2015	Professor, Department of Physics, UCSD, La Jolla, CA
1997-01	Assistant, Associate Prof. Department of Physics, UCSD, La Jolla, CA
1996	Assistant Physicist, Brookhaven National Laboratory, Upton, NY

**Products. (227 peer reviewed articles; h=56; Nature-group, Science, PRL, RMP: 68)**

**Five products related to the current proposal:**

A.S. McLeod, E. van Heumen, J. G. Ramirez, S. Wang, T. Saerbeck, S. Guenon, M. Goldflam, L. Anderegg, P. Kelly, A. Mueller, M. Liu, Ivan K. Schuller, and D. N. Basov, “*Nanotextured phase coexistence in the correlated insulator  $V_2O_3$* ,” Nature Physics 2016 (in press).

Jingdi Zhang, Xuelian Tan, Mengkun Liu, S.W. Teitelbaum, K.W. Post, Feng Jin, K. A. Nelson, D. N. Basov, Wenbin Wu, and R. D. Averitt “*Cooperative photoinduced metastable phase control in strained manganite films*” Nature Materials 15, 956 (2016)

G. X. Ni, L. Wang, M. D. Goldflam, M. Wagner, Z. Fei, A. S. McLeod, M. K. Liu, F. Keilmann, B. Ozyilmaz, A. H. Castro Neto, J. Hone, M. Fogler, D. Basov. “*Ultrafast optical switching of plasmon polaritons in high-mobility graphene*” Nature Photonics 10, 244 (2016).

M. K. Liu, M. Wagner, E. Abreu, S. Kittiwatanakul, A. McLeod, Z. Fei, M. Goldflam, S. Dai, M. M. Fogler, J. Lu, S. A. Wolf, R. D. Averitt, and D. N. Basov “*Anisotropic Electronic State via Spontaneous Phase Separation in Strained Vanadium Dioxide Films*” Phys. Rev. Lett. 111, 096602 (2013)

M. K. Stewart, Jian Liu, M. Kareev, J. Chakhalian, and D. N. Basov “*Mott Physics near the Insulator-To-Metal Transition in  $NdNiO_3$* ” Phys. Rev. Lett. 107, 176401 (2011).

**Five other significant products:**

D. N. Basov, Richard D. Averitt, Dirk van der Marel, Martin Dressel, and Kristjan Haule “*Electrodynamics of correlated electron materials*” Reviews of Modern Physics 83, 471 (2011)

D.N. Basov, M.M. Fogler, and J. Garcia de Abajo “*Polaritons in van der Waals Materials*” Science 2016 (in press)

Jura Rensberg, Shuyan Zhang, You Zhou, Alexander S. McLeod, Christian Schwarz, Michael Goldflam, Mengkun Liu, Jochen Kerbusch, Ronny Nawrodt, Shriram Ramanathan, D.N. Basov, Federico Capasso, Carsten Ronning, and Mikhail A. Kats “*Active Optical Metasurfaces Based*

*on Defect-Engineered Phase- Transition Materials*” Nano Lett. 16, 1050, (2016).

M. K. Liu, B. Pardo, J. Zhang, M. M. Qazilbash, Sun Jin Yun, Z. Fei, Jun-Hwan Shin, Hyun-Tak Kim, D. N. Basov, and R. D. Averitt “*Photoinduced Phase Transitions by Time-Resolved Far-Infrared Spectroscopy in  $V_2O_3$* ” Phys. Rev. Lett. 107, 066403 (2011)

S. Dai, Z. Fei, Q. Ma, A. S. Rodin, M. Wagner, A. S. McLeod, M. K. Liu, W. Gannett, W. Regan, K. Watanabe, T. Taniguchi, M. Thiemens, G. Dominguez, A. H. Castro Neto, A. Zettl, F. Keilmann, P. Jarillo-Herrero, M. M. Fogler, D.N.Basov “*Tunable Phonon Polaritons in Atomically Thin van der Waals Crystals of Boron Nitride*” Science 343, 1125 (2014)

#### **d. Synergistic Activities.**

- Co-organizer of workshops and conferences (Gordon Research Conf., LEES-2012, etc.)
- Disseminated scientific results through numerous invited talks at National and international conferences as well as through invited lectures at academic institutions.
- Advisory boards: National High Magnetic Field Laboratory; California Institute for Information Technology, CINT.
- NRC panel on High Magnetic Fields

**Awards:** Ludwig Genzel Prize 2004; Sloan Fellowship, Cottrell Fellowship, NSF CAREER award 1998; APS Fellowship 2006; the Humboldt Prize 2009; Isakson Prize, American Physical Society 2012; American Association for the Advancement of Science, Fellow 2012; Moore Investigator in Quantum Materials 2014.

#### **e. Thesis Advisor and Postgraduate-Scholar Sponsor, Collaborators - Last 48 months**

M. Aronson (Brookhaven), R.Averitt (UCSD), D.D. Awschalom (Chicago), A.V. Balatsky, (LANL), P.C.Canfield (Iowa), A.Castro Neto (NUS), J.Chakalian (U.Arkasas), F. Capasso (Harvard), P.Dai (Rice), G. Dominguez (CSUSM), M.Dressel (Stuttgart), K.Haule (Rutgers), A.J. Heeger (UCSB), C.C.Homes (Brookhaven), J. Hone (Columbia), H.Hwang (Stanford) M.Fogler (UCSD), P.Jarillo-Herrero (MIT), E. Kaxias (Harvard), H.T.Kim (ETRI). F.Keilmann (LMU-Munich), P.Kim (Harvard), G.Kotliar (Rutgers), J.Lau (UC Riverside), M. Lipson (Columbia), A.J. Millis (Columbia), I.K. Schuller (UCSD), M.Thiemens (UCSD).

**Graduate advisor** – V.S.Bagaev, Lebedev Physics Institute, Moscow

**Post-graduate Advisor** – T.Timusk, McMaster University

**Graduate Advisees** – E.J.Singley(Cal State), S.V.Dordevich (U.of Akron), W.Padilla (Duke University), K.Burch (Boston College), Z.Q.Li (NHMFL), A. Laforge (Cymer), T. Driscoll (Duke University), Maggie Stewart, Omar Khatib (U. Colorado, Boulder), Greg Andreev (Bruker Nano), Joshua Gollub, Brian Chapler (Intel), A.Schafgans (Cymer), Zhe Fei (Iowa State), Michael Goldflam (Sandia); Current grad students Alex McLeod, Siyuan Dai, Kirk Post, Ted Stinson., Yinming Shao, Aaron Sternbach, Ran Jing.

**Postgraduate-Scholar Sponsored** – Patrick Henning (Foster Miller), Michael Dumm (Bruker), Yunsang Lee (Soongsil U), Mumtaz Qazilbash (William and Mary), S.J. Moon (Hanyang U), Gerardo Domiguez (CalState San Marcos), Guangxin Ni, Alex, Charnoukha, Alex Frenzel, Rashimi Singla (UCSD).