Mohindar Singh Seehra
Eberly Distinguished Professor Emeritus
Department of Physics & Astronomy, West Virginia University
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May 16, 2022.
https://en.wikipedia.org/wiki/Mohindar_Singh_Seehra
https://physics.wvu.edu/faculty-and-staff/faculty/mohindar-seehra

A. EDUCATION:

8/1955 - 6/1959 R. K. Arya College, Nawanshahr, Punjab University, India. B.Sc.
8/1960 - 7/1962 Aligarh University, India, M.Sc. (Physics)- Top Rank (medalist)
9/1963 - 6/1969 University of Rochester, NY, Ph.D. (Physics); (Advisor: Prof. T. G. Castner)

B. PROFESSIONAL POSITIONS:

8/16/2016-	Eberly Distinguished Professor Emeritus
5/2008- 8/2016	Research Professor/Eberly Professor Emeritus, West Virginia University.
1/1992 - 5 /2008	Eberly Distinguished Professor of Physics, West Virginia University.
8/1977 - 12/1991	Professor of Physics, West Virginia University.
8/1973 - 8/1977	Associate Professor of Physics, West Virginia University
8/1969 - 8 /1973	Assistant Professor of Physics, West Virginia University
8/1962 -7/1963	Lecturer in Physics, Jain College, Ambala, India
8/1959 -8/1960	Laboratory Instructor in Chemistry, Arya College, Nawanshahr, India

C. AWARDS AND HONORS:

1. Inducted into the WV Order of Vandalia on June 7, 2019, for “Distinguished Service to West Virginia University”.

2. 2015 Mary Catherine Buswell Award, West Virginia University, “for advancement of women at West Virginia University and for service to the Community”.

3. Selected as an ‘Outstanding Referee’ in 2010 by the American Physical Society (APS) for service as a referee of the manuscripts submitted to the journals published by the APS;

4. Selected as a Fellow of the American Physical Society in 1984 “for experimental contributions to improved understanding of magnetic and dielectric materials”.

5. Selected as a Fellow of the Institute of Physics (UK) 2001-

6. Alfred P. Sloan Foundation Research Fellow, 1973-76.

7. Albert Nelson Marquis Lifetime Achievement Award, Marquis Who's Who in America, 2017.

8. Eberly Family Distinguished Professor of Physics, West Virginia University, 1992—

9."Outstanding Researcher of the College of Arts and Sciences at West Virginia University" in 1985

10. Oak Ridge Associated Universities Summer Fellow during 1976, 1977, 1984 and 1985.

D. Research Focus: Magnetism of transition metal oxides, sulfides, fluorides, spinels, and perovskites; Magnetism in lower dimensions(2-D and 1-D); Size and surface effects in magnetic nanostructures; Carbon-based materials(graphites, C_{60}, graphene, coals, cellulose); Applications of nanostructures in catalysis and biomedicine.

E. Books Edited

1. **Magnetic Spinels- Synthesis, Properties and Applications,** edited by M.S. Seehra (314 pages, InTech Publishers, London, UK, March 2017) ISBN: 978-953-51-2974-5; Print ISBN: 978- 953-51-2973-8.
2. **Nanostructured Materials: Fabrication to Applications,** edited by M. S. Seehra (222 pages, InTech Publishers, London, UK, July 2017). ISBN: 978-953-51-3372-8; Print ISBN: 978-953-51-3371-1.
3. **Noble and Precious Metals- Properties, Nanoscale Effects and Applications,** Edited by M. S. Seehra and A.D. Bristow (432 pages, InTech Publishers, London, United Kingdom, July 2018) Online ISBN:978-1-78923-293-6; Print ISBN:978-1-78923-292-9.

F. PROFESSIONAL SERVICE:

At WVU, I served on numerous committees at the department, college, and university levels.

I reviewed several proposals every year for agencies such as the National Science Foundation and the Department of Energy.

I am a referee for several journals reviewing about twenty papers per year. I have reviewed papers for the Physical Review, Physical Review Letters, Physics Letters, Materials Letters, Journal of Physics and Chemistry of Solids, Journal of Applied Physics, Journal of Magnetism and Magnetic Material, Journal of Solid State Chemistry, Fuel, J. Phys. Condens. Matter; J. Phys. D: Applied Physics, J. Material Research, Fuel Processing Technology, Journal of Alloys and Compounds, Solid State Communications, Carbon, Physica, Applied Physics Letters, and Physics Status Solidi.

External Reviewer for Ph.D. dissertations in various universities in India such as: Indian Institute of Technology, Madras; Calcutta University; Indian Institute of Technology, Kanpur; University of Hyderabad; Aligarh University; Indian Institute of Technology, Roorkee; and Indian Institute of Science, Banglore and Indian Institute of Technology, Guwahati.

G. Research Supervision and Training of Students and Postdocs

M.S. THESIS SUPERVISED:

1. 1972, E. E. Bragg - Temperature Dependence of the Magnetic Susceptibility of MnF_2
2. 1972, R. A. Rendina - Electrical Resistivity of Cr-Mn Alloys
3. 1974, V. L. Capan - Electrical Resistivity of Fe and FeCo Alloys
4. 1975, G. W. Diver - Magnetic Susceptibility of CoO

5. 1976, G. E. Hammer - Magnetic Susceptibility and Magnetic Transition in MnO
6. 1976, P. S. Silinsky - Alpha-Gamma and Order-Disorder Transitions in FeCo
7. 1978, D. E. Husk - Dielectric Properties of Iron Pyrite
8. 1978, W. B. Parker - Temperature Dependent Resistivity of FeS_2
9. 1980, R. E. Helmick - Temperature Dependence of the Dielectric Properties of MnO
10. 1982, R. D. Groves - Shifts in the Optical Absorption Transitions of MnO near T_N
11. 1982, R. Jayaram - Low Frequency Dielectric Properties of CoO near the Néel Temperature
12. 1983, K. Nitsopoulou - Search for Anisotropy in the EPR Spectra of MnO
13. 1984, D. M. George - Optical Absorption Study of 250 K Transition of $BaMnF_4$
14. 1984, S. Arhunmwunde - Analysis of Molecular Field Theory of Magnetic Susceptibilities
15. 1987, L. Cheng - Theory of Photoacoustic Spectroscopy and Spectra of Quartz
16. 1987, S. Mullins - A High Temperature ESR Cavity System and Coal Pyrolysis Studies
17. 1988, J. C. Dean - Magnetic Studies of Co^{2+} and Fe^{2+} ions in MgO
18. 1988, B. Gordon - Magnetic Susceptibility of Monomers and Dimers of Mn^{2+} ions in MgO
19. 1989, Z. Feng - Magnetic Properties of Cupric Oxide
20. 1990, John Coletti - Structural and Magnetic Properties of Mn-doped □-TiAl Alloys
21. 2000, Paromita Roy - Magnetic Properties of Silica Doped Ferrihydrite Nanoparticles
22. 2000, Heidi Magnone - Synthesis and Characterization of Metal Oxide Nanoparticles
23. 2004, Latha Ramakrishnan: Electrochemical Detection of Mercury using Boron-Doped Diamond Electrodes.
24. 2005, Aashish Kalra: Microwave Dewatering of fine coal slurries.
25. 2007, Sukanya Ranganathan: Carbon assisted electrolysis of water to produce hydrogen at room temperature.
26. 2008, Shilpa Bollineni: Hydrogen production via carbon- assisted water electrolysis at room temperature: Effects of catalysts and carbon type.
27. 2010, Savan Suri: Synthesis, structural and magnetic properties of copper-doped cerium oxide nanoparticles.

28. 2011, L. P. Akkineni: Hydrothermal pretreatment of biomass samples for producing energy efficient hydrogen electrochemically.

29. 2013, Sai Kishore Pyapalli: Phase transformations of microcrystalline cellulose under ball-milling and hydrothermal treatment.

PH.D. DISSERTATIONS SUPERVISED:

1. 1971, R. P. Gupta: Temperature Dependence of the EPR Linewidth in $RbMnF_3$, $KMnF_3$, and Mg Doped $KMnF_3$

2. 1974, E. E. Bragg: The Vibrating Sample Magnetometer and the Magnetic Susceptibility of MnF_2, $RbMnF_3$ and MnO

3. 1981, S. C. Kondal - Magnetic Resonance and Magnetostatic Modes in EuS

4. 1982, P. S. Silinsky - Non-Stoichiometry and Temperature Dependent Magnetic Susceptibilities in CoO

5. 1985, S. A. Abumansoor - Antiferromagnetic Ordering Effect on the Optical Transitions in MnF_2

6. 1987, R. Kannan - Magnetic Properties of Randomly Diluted Antiferromagnetic System: CoMgO

7. 1988, S. Darwish- Two-Exciton and Exciton-Magnon Bands in Mn^{2+} Magnets

8. 1991 - Feng Zhen - Magnetic Properties of $Ni_pMg_{1-p}O$ System

9. 2006- Jenny Shim - Size Effects in the Magnetic Properties of NiO nanoparticles

10. 2009- Vivek Singh- Size Dependent Magnetic Properties of Nickel Nanoparticles embedded in silica matrix

11. 2011- James Rall- Nanosize Effects in the Magnetic Properties of Two Layered Hydroxides of Nickel.

12. 2015- Vishal Narang- Erbium Alloyed Aluminum Nitride thin films: Structural, piezoelectric and magnetic properties. Currently Research Associate at CUNY, NY

13. 2015- Kelly Pisane- Effect of size and size distribution on the magnetic properties of maghemite nanoparticles and core-shell iron-platinum nanoparticles. Initially employed as scientist at Nokomis Inc; Now working in Big Data Analyst at Booking. Com (Amsterdam, Netherlands).

14. 2016- Zhengjun Wang- Investigations into the nature of magnetism in transition-metal phthalocyanines; Initially employed as a Research Associate at Georgia Institute of Technology; Now employed at Intel Corp.

CURRENT STUDENTS:

Although I am officially retired now, I am still mentoring several Ph.D. students. Recent advisees include Sobhit Singh who is now a postdoc at Rutgers, Navid Mottaghi and Mina Aziziha at WVU, and some students at other universities (University of Connecticut and IIT, Guwahati,India). This is done at the request of the students in consultation with their Ph.D. advisors. My role in this capacity has been to assist these students in the interpretation of their data and in preparing the manuscripts for publication.

POSTDOCTORAL RESEARCH ASSOCIATES:

1. 1971-1972. R. P. Gupta, now retired from an aerospace company after many years of service
2. 1976-77 Paul S. Burgardt, joined Rockwell International
3. 1977-78. W. W. Kou, joined U.S. Naval Research
4. 1978 S. S. Seehra, with Lockheed/Martin (now retired)
5. 1979-81. Jagadeesh Moodera, Now Senior Research Professor at Magnet Lab., M.I.T., (Cambridge)
6. 1981-82. G. S. Chaddha, Chairman, Physics Department, Punjab Agricultural Society, India (now retired).
7. 1981-84 G. S. Srinivasan, Now Professor of Physics, Oakland University, Michigan
8. 1984. T. T. Srinivasan, joined as a research associate at Penn State Univ.
9. 1985-87 Bikas Ghosh, now an Associate Professor at a Calcutta Univ. in India
10. 1986-89. Gopalakrishnan Thevar, Joined Brigham Young University in July 1989
11. 1987-90 P. Raghoottama, joined Vanderbilt University in January, 91, now owns a biomedical business in St. Louis, Missouri.
12. 1987-88 Ali Tatli, Fulbright Scholar from Middle East Technical University in Ankara, Turkey
13. 1988-90. J. Zhao – Worked for a semiconductor company in CA(now retired)
14. 1988-96. M. M. Ibrahim – currently a V.P. for J. P. Morgan Co.
15. 1989-98. Suresh Vennekkat – now working for the IRS
16. 1990-98 Eric Hopkins worked with me as a full-time research associate; now working for the geological survey, West Virginia University.
17. 1996-2005. A. Manivannan, left to become a Program Manager/ Research Scientist at the National Energy Technology Laboratory of U.S. Dept. of Energy, Morgantown, WV.
18. 1999-2002. Alex Punnoose, full Professor of Physics at Boise State University (now deceased).
19. 2003- 2007 Prasant Dutta, senior Research Associate, Anderson Cancer Center, Houston, TX.

20. 2005- 2007. Susmita Pal, was a research associate at the University of South Florida, Tampa, FL; Now working at the Anderson Cancer Center, Houston, TX.

21. 2009- 2012. Vivek Singh, now a Research Associate at the University of Colorado, Boulder, CO.

22. 2015-2016. Vishal Narang, now a Research Associate at CUNY, NY.

H. COURSES TAUGHT AT WEST VIRGINIA UNIVERSITY:

Physics 111, 112 - Engineering Physics

Physics 283 - Thermodynamics for juniors and seniors

Physics 251-252 - Undergraduate Quantum Physics

Physics 231-232 - Undergraduate Classical Mechanics

Physics 124 - Modern Physics for undergraduates

Physics 241 - Modern Lab for juniors and seniors

Physics 271-272 - Introductory Solid State Physics

Physics 301 - Advanced Topics in Phase Transitions for graduate students

Physics 331 - Advanced Classical Mechanics

Physics 351 - Graduate Quantum Mechanics

Physics 371-372 - Intermediate Solid-State Physics

Physics 401 - Special Topics in X-Ray Diffraction (Spring 1999, Fall 2000)

Physics 401 - Special Topics in Magnetism & Magnetic Resonance (Spring 2001)

I. PRESENTATIONS

During my career at WVU, over two hundred presentations have been made by me and various members of my research group at professional meetings such as the Annual March Meeting of the American Physical Society, Magnetism and Magnetic Materials Conferences, Annual Review meeting of the Consortium for Fossil Fuel Science, and for funding agencies. I have also made some invited presentations at conferences and at other universities, including universities in Netherlands, Spain and in India.

J. RESEARCH GRANTS RECEIVED:

The grants listed below were awarded on the merit of the submitted proposals. The funds were used to defray the costs of doing research including acquisition of equipment, support of graduate students and postdocs, partial support for the summer salary of the PI and costs associated with attending conferences to make presentations of our research results. The dollar amount listed is the actual amount received at that time without adjusting for inflation.

1. 1971, Cottrell grant from the Research Corporation, $7,000
2. 1972, National Science Foundation, $13,500
3. 1973, A. P. Sloan Foundation Fellowship, $22,700
4. 1974, National Science Foundation, $40,000, two year grant
5. 1976, National Science Foundation, $45,000, two year grant
6. 1976, Energy Research Center, WVU, $20,000
7. 1977, Energy Research Center, WVU, $20,000
8. 1978, National Science Foundation, $83,300, three year grant
9. U.S. Department of Energy, $12,000
10. Energy Research Center, $20,000
11. 1980, U.S. Department of Energy, $26,909, two year grant
12. 1981, Energy Research Center, $24,856
13. National Science Foundation, $90,000, three year grant
14. 1982, Energy Research Center, $8,000
15. 1984, Energy Research Center, $26,976
16. 1985, Energy Research Center, $22,054
17. 1986, National Science Foundation, $47,000, two year grant
18. U.S. Department of Energy, $185, 557, three year grant
19. U.S. Bureau of Mines, $77,841
20. 1986, U.S. Department of Energy, $20,500
21. 1987, U.S. Department of Energy, $20,324
22. U.S. Bureau of Mines, $66,004
23. State of WV, special equipment funds, $37,000
24. Energy Research Center, $2,400
25. 1988, U.S. Bureau of Mines, $64,000
26. 1988 U.S. Department of Energy/CFFLS, $50,000
27. 1988, DARPA/CERC (with Pavlovic, Cooper, Dalal), $276,000
28. Energy Research Center, $27,000 (with M. Chaudhry)
29. 1989, DARPA/CERC, for developing Materials Research Lab, $550,000
30. 1990, U.S. Bureau of Mines, $50,000
31 1990, U.S. Department of Energy/CFFLS, $62,000
32. 1990, U.S. Department of Energy/Graphite Project, ~$180,000, three year grant
33. 1990, U.S. Department of Energy through NRCCE, $55,000 for equipment
34. 1991, U.S. Bureau of Mines, $50,630
35. 1991, U.S. Department of Energy/CFFLS, $71,566

36. 1992, U.S. Department of Energy/NRCCE, $95,000 for equipment

37. CONSOL Inc., $20,049

38. U.S. Bureau of Mines, $51,887

39. U.S. Department of Energy/CFFLS, $82,977

40. 1993, U.S. Department of Energy/CFFLS/NRCCE, $113,614

41. U.S. Bureau of Mines (with M. Gautam of Mech. Engg), $99,777

42. CERB award/NRCCE, $26,000

43. NSF/EPSCoR, $18,850

44. 1994, U.S. Department of Energy/CFFCL/NRCCE, $128,961

45. U.S. Department of Energy/METC (with F. King of Chemistry), $61,817

46. NSF/EPSCoR, $27,970

47.1995, U.S. Bureau of Mines (with M. Gautam of Mech. Engg), $99,760

48. U.S. Department of Energy/CFFLS/NRCCE, $113,700

49. NSF/EPSCOR, $29,550

50. 1996, U.S. Bureau of Mines on Microwave assisted regeneration of traps, $30,000.

51. U.S. Dept. of Energy, Pittsburgh Energy Technology Center; Catalysis and Free Radical ESR Spectroscopy - $119,677 for 1996-97 including some matching by NRCCE.

52. National Sciences Foundation/EPSCoR, for Nickel based superalloys -- $24,310

53 1997, U.S. Department of Energy: Catalysis and Free Radical ESR Spectroscopy – $131,068 for 1997-1998, including some matching by NRCCE.

54. U.S. Bureau of Mines: Microwave assisted regeneration of traps. Project ended September 30, 1997 with about $30,000 available for 1996-1997.

55. National Sciences Foundation/EPSCoR, for Nickel based superalloys -- $24,000 for 1997-1998 without indirect costs (waived).

56. 1998, U.S. Department of Energy: Catalysis and Free Radical ESR Spectroscopy □ $25,000 for 1998-1999; program ended June 1999.

57. National Science Foundation: High temperature structural alloys with Cooper, Chang, Kang and Van Scoy for 1998-2000. My share of 1998-1999 budget is $96,442.

58.1999, U.S. Department of Energy: "C-1 Chemistry Program: Analytical Characterization of Catalyst Structure and Product Distribution", $115,695 for the period 4/28/99 to 4/27/00.

59. U.S. Department of Energy: "Particulate Matter Program: Characterization of organic and inorganic components of PM2.5", $62,511 for the period 7/1/99 to 6/30/00.

60. National Science Foundation: "Industrial Partnership on Structural Alloys" (CoPI) with B. R. Cooper as the PI, $59,440 for the period 7/1/99 to 6/30/00, including WVU match.

61. 2000: U.S. Department of Energy: C-1 Chemistry Program on Catalyst Characterization, $115,695 for the period 4/29/00 to 4/28/01.

62. U.S. Department of Energy: Particulate Matter Program, $45,067 for 7/1/00 to 6/30/01.

63. National Science Foundation: Equipment grant of $196,500 for acquiring a Scanning Probe Microscope, with Professor Lederman, Myers and Stinespring.

64. NETL/Department of Energy: Development of electrochemical techniques for mercury detections with A. Manivannan, $7,400.

65. 2001: U.S. Department of Energy: C-1 Chemistry Program on Catalysis, $102,000

66. U.S. Air Force Office of Scientific Research (with Lederman and Cooper): My share is $43,682/year for two years.

Grants for 2002-2016:

67. Air Force Office of Scientific Research – DEPSCoR, "An Integrated Methodology for three-dimensional visualization of subsurface microcracks", with Lederman, Cooper, Seehra, Chang and Kang. My share of the budget is $43,682 per year, for the two year period 6/2001 to 5/2003.

68. U.S. Department of Energy/NETL University Research Program: "Quantification of mercury in flu gas emissions using boron doped diamond", A. Manivannan and M. S. Seehra, $50,000 for 10/1/01 to 9/30/02. The project ended September 30, 2002.

69. U.S. Environmental Protection Agency/EPSCoR: "Development of electrochemical techniques for the detection/quantification of mercury using boron-doped diamond electrodes, M. S. Seehra, A. Manivannan and R. Smart (Chemistry Dept.), $410,465 for two years, 10/1/01 to 9/30/04.

70. U.S. Department of Energy, Center for Advanced Separation Technologies: "Development of electrochemical sensors for on-site monitoring of heavy metal ions in coal processing and utilization", A. Manivannan and M. S. Seehra, $200,219 for two years, 1/1/02 to 12/31/03.

71. U.S. Department of Energy, Consortium for Fossil Fuel Science: "C-1 Chemistry Research for the production of ultra-clean transportation fuels and hydrogen". A new three-year program was funded for the period 10/1/02 to 9/30/05. My project deals with "Analytical Characterization of Catalysts" with a budget of $112,585 for year I.

72. Air Force Office of Scientific Research: An Integrated Methodology for three-dimensional visualization of subsurface microcracks, Lederman, Cooper, Seehra, Chang and Kang. My budget is $87,364 for 6/2001 to 5/2004.

73. U.S. Department of Energy: New Strategies for Dewatering of Coals; M. S. Seehra, A. Manivannan and M.E. Bachlechner, $267,963 through 12/31/05. The budget for the Seehra-Manivannan team is $175,829.

74. "Analytical Characterization of Catalysts" funded by the U.S. Department of Energy (DOE) through the Consortium for Fossil Fuel Science (CFFS) on the "Production of ultra-clean transportation fuels and hydrogen" with budgets of $112,585 for 10/1/02 to 9/30/03, $149,167 for 10/1/03 to 9/30/04.

75. Continuation of project # 74 with a budget of $138,676 for 10/1/04 to 9/30/05.

76. A. Manivannan and M.S. Seehra: "Portable sensor for detecting mercury and other heavy metals encountered in coal processing and utilization", a new two-year project funded by U.S. DOE/CAST. The approved budget for year I (10/1/04 to 9/30/05) is $127,491.

77. M. S. Seehra: "Portable sensor for detecting mercury and other heavy metals encountered in coal processing and utilization". The second year budget for Year II to 10/30/07 is $123,179. The funding source is DOE/CAST.
78. M. S. Seehra: "Development of novel technologies for the production and storage of hydrogen from coal". A new three-year project approved for funding by the U.S. Department of Energy. Budget for year I through 5/31/06 was $170,000 plus$33,736 in cost-share provided by NRCCE.

79. M. S. Seehra and B. S. Kang (PI): "Ductility enhancement of Mo phase by nano-size oxide dispersions." A new three year (8/1/05 to 7/31/08) project funded by the National Energy Technology Laboratory for $200,000. However my share is rather small ($27,813).

80. M. S. Seehra and B. S. Kang (PI): "In-situ mechanical property measurement and influence of carbon and oxygen on grain boundary strength of Mo alloys." A three-year project (6/23/05 to 6/30/08) funded by UT-Batelle, with two year funding of $200,000. .My share of this budget is $35,230.

81. M. S. Seehra: A gift of $10,500 (no overhead allowed) was received from DTE Pep Tec Inc. (Canonsburg, PA) to purchase the Rietveld Software Code for the quantitative analysis of x-ray diffraction patterns. We carried out analysis of some of their samples.

82, M. S. Seehra: "X-ray diffraction analysis of samples", for NETL; $6,950 were received from NETL during 2005.

83. "Production of Military Fuels using C1 Chemistry", was a new multiyear proposal approved by the U.S. Department of Defense for 2007. This proposal by the five university (WVU, Pittsburgh, Auburn, Utah and Kentucky) Consortium for Fossil Fuel Science has a tentative budget of 1 million per year. My share of the budget for 4 years (10/1/07 to 9/30/11 is $326,388 dollars. My scientific contribution to this project is in the area of structural/electronic characterization of catalysts and research on elastomers.

84. "On improving the hydrophobicity of oxidized coals" funded by USDOE for two years (10/1/09 to 9/30/11). My budget for two years is $276,342.

85. Unconventional Resources for Shale Gas" USDOE/ NETLwith budget of $77,491for 10/09 to 1/11.

86. M. S. Seehra: "Development of novel technologies for the production and storage of hydrogen from coal"; $532,465 for the period 10/1/07 to 12/31/12 received from DOE.
87. Zeta Potential Approach to Fine Coal Beneficiation, funded by USDOE @$136,753 for 1010-9/13.

88. Characterization and measurements of cellulose crystallinity, funded by NIOSH/CDC $46,000 for 9/30/11 to 10/1/2013.
89. Characterization and measurements of nanomaterial crystallinity and surface chemistry, funded by NIOSH/CDC, $72,000 for 4/17/2013 to 9/30/2016.

90. Engineered High Value Carbonaceous Products from Biorefinery By-Products, B. Dawson-Andoh and M. S. Seehra, Funded by the North East Sun Grant Institute of Excellence through the U. S. Department of Agriculture for $ 118,055 plus $31,410 in cost-share for the period 7-1-2014 to 9-30-2015. My share of the federal budget is $62,688.

K. REVIEW PAPERS AND CHAPTERS IN BOOKS:

1. M. S. Seehra and D. L. Huber: Paramagnetic Resonance Linebroadening and Spin Spin

Relaxation near Magnetic Critical Points, AIP Conference Proceedings 24, 261-267 (1975).

2. M. S. Seehra: Non-Stoichiometry and Magnetic Properties of MnO, FeO, CoO, and NiO, in "Basic Properties of Binary Oxides" edited by A. Dominquez-Rodriquez, J. Castaing and R. Marquez (Univ. of Sevilla Press, Spain 1984) pages 179-193.

3. M. S. Seehra and H. P. J. Wijn: Book chapter entitled "Magnetic Properties of Binary Oxides of d-Transition Elements" in Magnetic properties of Non-Metallic Inorganic Compounds Based on Transition Elements edited by H. P. J. Wijn, Vol. 27g in the Landolt-Börnstein series (Springer Verlag, 1992) pages 1-86.

4. G. Srinivasan and M. S. Seehra: Book chapter entitled "Magnetic Properties of Amorphous Oxides" published in the book "Magnetic Properties of Non-Metals" Vol. III-27/f3 in the Landolt-Börnstein series (Springer-Verlag) pages 239-319 (1994).

5. M. S. Seehra and M. M. Ibrahim: Invited review entitled "Applications of electron spin resonance spectroscopy to catalysis in direct coal liquefaction" Catalysis Vol. 12 (The Royal Soc. of Chemistry, U.K. 1996) pages 302-320.

6. M. S. Seehra and Vivek Singh : 'Use of microwave heating in coal research and in materials synthesis' published in the book entitled 'Microwave Heating' edited by U. Chandra(Intech Publishers, Croatia, 2011) pages 163-180; ISBN:978-953-307-573-0. As of September 1, 2016 2015, this book chapter has been downloaded by 5430 researchers world-wide, with the current download rate of about 60 per month.

7. M. S. Seehra and V. Narang: Mesoporous carbons for energy-efficient water splitting to produce pure hydrogen at room temperature, book chapter in the recently published (8-25-2016) open- access book entitled “Microporous and Mesoporous Carbons”, edited by R. S. Dariani and published by InTech Publishers, ISBN 978-953-51-2582-2.

8. M. S. Seehra and A.D. Bristow, Overview of the properties and applications of noble and Precious metals, Introductory chapter in the book ‘Noble and Precious Metals- Properties, Nanoscale Effects and Applications’ edited by M. S. Seehra and A.D. Bristow; ISBN: 978-1-78923-292-9 (Intech Publishers, London, UK 2018) pages 3-11.

L. RESEARCH PUBLICATIONS IN PEER-REVIEWED JOURNALS:

1. M.S. Seehra and T.G. Castner: The Paramagnetic Linewidth in Copper Formate Tetrahydrate, Phys. Kondens, Materie 8, 185-200 (1968).

2. M.S. Seehra: New Method for Measuring the Static Magnetic Susceptibility by Paramagnetic Resonance, Rev. Sci. Instr. 39, 1044-1047 (1968).

3. M.S. Seehra and T.G. Castner: Antiferromagnetic Resonance in Copper Formate Tetrahydrate, J. Appl. Phys. 40, 1240 (1969).

4. M.S. Seehra: Two-Dimensional Magnetic Behavior of Copper Formate Tetrahydrate, Phys. Lett. A28, 754-755 (1969).

5. M.S. Seehra and T.G. Castner: Study of the Ordered Magnetic State of Copper Formate Tetrahydrate by Antiferromagnetic Resonance, Phys. Rev. B1, 2289-2303 (1970).

6. M.S. Seehra and T.G. Castner: Critical Behavior of the EPR Linewidth in MnF_2, Solid State Comm. 8, 787-790 (1970).

7. R.P. Gupta and M.S. Seehra: Critical Behavior of the Paramagnetic Linewidth in $RbMnF_3$, Phys. Lett. A33, 347-348 (1970).

8. T.G. Castner and M.S. Seehra: Antisymmetric Exchange and Exchange-Narrowed EPR Linewidths, Phys. Rev. B4, 38-45 (1971).

9. M.S. Seehra: Frequency Dependence of the EPR Linewidth in MnF_2 near the Critical Point, J. Appl. Phys. 42, 1290-1292 (1971).

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