

Curriculum Vitae of Henry Gordon BERRY

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Born: July 25, 1940, in Huddersfield, England; Citizenship: British; American (since March 22, 1988)
Married to Mary Hynes-Berry, with four sons

Degrees (in Physics) Ph.D. University of Wisconsin, Madison - August 1967
 M.Sc. University of Wisconsin, Madison - June 1963
 B.A. Oxford University, (University College) England - August 1962

Career:

Dec 1994 to present Professor, Department of Physics, University of Notre Dame, Notre Dame
2013 (March to May) Sabbatical leave in China (Fudan Univ. Shanghai) and India (Inter-University Science Lab, Delhi, Woodstock school, Mussoorie)
2012 (Jan to April) Sabbatical leave in Singapore (IB schools) and India (Inter-University Science Lab, Delhi, Woodstock school, Mussoorie)
1987 to Dec 1994 Senior Physicist, Argonne National Laboratory
1987 to Aug 1994 Adjunct Professor, Physics Department, University of Illinois, Chicago
Jun 1990 - Jan 1991 Acting Director, Academy for Mathematics and Science Teachers in Chicago
Sept 1981 - Mar 1982 Sabbatical at the Laboratoire Aimé Cotton, University of Paris South, Orsay
Mar 1982 - Jul 1982, Sabbatical at the Department of Physics, University of Lund, Sweden
Sep 1976 - Aug 1987 Physicist, Argonne National Laboratory
Jul 1974 - Aug 1976 Assistant Scientist, Argonne National Laboratory
Sep 1972 - Jun 1979 Assistant Professor, Department of Physics, University of Chicago
Oct 1970 - Sep 1972 Assistant Professor (Maitre de Conférences Associé), University of Lyon, France
Sep 1969 - Dec 1970 Guest Researcher, The Research Institute, Stockholm, Sweden
Sep 1968 - Aug 1969 Post Doctoral Fellow, Physics Department, University of Arizona, Tucson
Sep 1967 - Aug 1968 Instructor, University of Wisconsin, Madison
Sep 1962 - Aug 1967 Teaching Assistant or Research Assistant, University of Wisconsin
 [Came to Wisconsin on an English Speaking Union Fellowship]

Professional Societies: Fellow of the American Physical Society

Member of the American Association of Physics Teachers, the National Science Teacher Association, the Hoosier Assoc. of Science Teachers of Indiana.

Professional Service Committees:

Program Advisory Committee, Brookhaven Tandem Van de Graaff Accelerator, 1977 - 81
Academy of Sciences NRC Committee on Atomic Spectra and Line-strengths, 1981 -1988
American Physical Society (DAMOP): Publications Committee member 1987 - 1989, Program Chair of Symposium on Atomic Spectra, held at Lisle, IL in August, 1987.
Committee member 1984 - 1986, Nominations Committee member 1996-98
Academy of Sciences NRC Committee on Measurements and Standards, 1988 - present.
Chair of Organizing Committee for the APS Division of Atomic, Molecular and Optical Physics (DAMOP) Annual meeting in Chicago, 1992.

Thesis Advisees (completed recently)

Ph.D.s: B. Lin, I.M. Savukov, A.A. Vasilyev (Univ. of Notre Dame), Tim Dinneen (Univ. of Chicago); Mark Raphaelian, Jamal Suleiman (Univ. of Illinois, Chicago).
Postdoctoral students: Nora Berrah (now Prof. at Western Michigan), Yoshiro Azuma (now at KEK, Japan), Song Cheng (now Prof. at Toledo), Rami Ali (now Prof. at Reno)

Publications: Editor of eight conference proceedings; about 190 publications in physics journals, principally in the field of atomic spectroscopy – complete listing given at the website:

<http://www.nd.edu/~hgberry/berry1.html>

Education Activity and Research

Besides being a scientist engaged primarily in research and in teaching at the College level, I have a fundamental interest in the quality of the U.S. Public schools - my 4 sons went to the Chicago Public Schools (CPS). A strike of Chicago teachers in 1987 brought a crisis to a head in the CPS, resulting in a

strong parent reaction, and a consequent complete reform of the administrative system: an important result was the development of Local School Councils and more autonomy of the individual community schools. Following more than a year of being involved in writing the Chicago School Reform Proposals in Springfield, IL, four of us (Drs. Leon Lederman, Henry and Priscilla Frisch and myself) developed the **Academy for Mathematics and Science Teachers**, Chicago. The Academy was formed June of 1990. I was its first acting Director. This Academy had a proven record of improving science and mathematics instruction (more than 100 schools in all) in the Chicago schools, and in schools in East St. Louis and in Aurora IL. It was incorporated into the Chicago Public Schools administrative structure in 2005.

The guided inquiry experiential process of learning has always been one which I try to apply both within the college classroom, and more recently in professional development of K-12 science teachers. The logical processes involved in STEM learning are vital to the development of modern, effective and successful communities - if we can do even a small part in transferring ideas, excitement and understanding the needs, it is our rewarding duty to do so.

Recent work in K-12 Education

2004: Founder/Director of **NISMEC** - *the Northern Indiana Science Mathematics and Engineering Collaborative* - a collaboration of local higher-ed institutions (Notre Dame, Saint Mary's and IUSB), the St. Joseph County schools (public and private) and other local educational institutions.

(<http://www.nd.edu/~nismec/nismec11.htm>) **Editor of website and newsletters, 2005 - present.**

2005: Consultant with Mishawaka School City for a IN-DOE Math-Science Partnership Grant ***Inquiry Learning for Students and Teachers*** 2005-2008, 3 years, \$450K.

Director of a 4 week summer workshop: *Guided Inquiry in Science and Mathematics for Middle School Teachers at Notre Dame*, Summer 2005, financed by the Siemens Foundation, the University of Notre Dame, and the Murgatroyd Science Foundation.

2006-11: HASTI (Hoosier Association of Science Teachers of Indiana) February annual meeting: several GI several workshops given each year, and a NISMEC exhibition booth.

2006-10: Director of science & math teacher summer workshops (120 teachers in 2010): (financed by I-STEM, the Siemens Foundation, Notre Dame, and the Murgatroyd Science Foundation).

2007 January: NISMEC, the Saint Marys and Notre Dame collaborative becomes the Northern Indiana Hub for I-STEM. (The Indiana Science, Technology engineering and Math network) Board Member.

2007 October to present – Director of **HOST** – Hands-On Science & Technology Center - http://nd.edu/~hgberry/host/sapc_host.htm in South Bend; project renewed Spring **2012** as MSTCi.

2008-09 - member of NISMEC/IUSB organizing committee: *Indiana Building Awareness for Science Education Symposium*

2008-10 – Member of Indiana DOE committee to develop the Indiana Science Standards.

2008-12 – Funded by ICHE (the Indiana Commission for Higher Education) Professional Development in guided inquiry and new technology for South Bend science teachers grades 5-8 [2 grants; \$350K].

2009 – Invited colloquia (with Mary Hynes-Berry) on “*Milton meets Einstein: Inquiring minds want to know*”, variants given at several university physics departments (publication in process).

2009-10-11-12 - Organized workshops - Modeling in Physics (from 2009) Chemistry (started 2010) and Biology (started 2011) for High school teachers - a continuing program supported in part through the Indiana Board of Education, and other funding agencies. [Grant: IN-MSP: \$450K 2011-2012]

2009-10-11-12 - Organized “**Sensing Our World** - Global Health” intensive hands-on science summer program for middle-school students - typically 50 to 70 students attend the program each year.

2011 - P12 STEM Education research Symposium 15-15 Aug, Minneapolis: workshop: *Do You Teach NAKED Science? Using Questions which Lead to Effective Scientific Inquiry* (Berry & Hynes-Berry)

2012- Feb-Mar - Scholar in Residence, Woodstock School, Mussoorie, India: supporting K-12 science teachers to learn Guided inquiry methods, & the use of Vernier technology in and outside the classrooms.

Feb & April - Visiting Scientist at The Inter University Accelerator Centre, New Delhi, India.

P12 STEM Education research Symposium 16 July, Minneapolis: workshop: *Teaching Teachers about Guided Inquiry: Reading an object and drawing like a scientist* (Berry & Hynes-Berry)

June-July - organized 6 NISMEC teacher workshops: 2 on “Extending the ISI for 5th-8th grade SBCSC teachers”; 4 modeling workshops in chemistry and biology (2 at Notre Dame, 2 at University HS, Carmel.)