2007 APS March Meeting

Denver, Colorado

http://www.aps.org/meetings/march

Monday, March 5, 2007 11:15AM - 2:15PM –

Session B1 FHP: 20th Anniversary of High Tc Superconductivity 'Woodstock' Session Colorado Convention Center Four Seasons 2-3

11:15AM B1.00001 Introduction and Overview of the 1987 'Woodstock' Session M. BRIAN MAPLE, University of California, San Diego —

11:27AM B1.00002 The Discovery of High-Tc Superconductivity and the Countdown to the Rally , J. GEORG BEDNORZ, IBM Research, Zurich Research Laboratory — The guiding ideas on our road towards high-Tc superconductivity and the early work at the IBM Zurich Research Laboratory are briefly addressed. I will shed some light onto the environment and the decisive circumstances that in January 1986 led to the breakthrough with the discovery of superconductivity in the cuprates. The pre-"Woodstock" period, which lasted less than a year, covers the time in which the Zurich team tested different La_2CuO_4-based compounds, confirmed the Meissner effect, and studied flux trapping in these new materials. It was also the time in which the news of the discovery started to spread and in which we experienced mixed reactions ranging from silent skepticism to polite (cautious) congratulations. This changed dramatically into excitement with the confirmation of the Zurich results by the Tokyo (S. Tanaka) and the Houston (C.W. Chu) group, and cumulated in the take-off of the new field at the famous "Woodstock Meeting of Physics" after the discovery of the 90 K superconductor.

11:39AM B1.00003 High T_c: The Discovery of RBCO[1] , C. W. CHU, University of Houston, Hong Kong University of Science and Technology and Lawrence Berkeley National Laboratory — It was said by Emerson that "there is no history; there is only biography." This is especially true when the events are recounted by a person who, himself, has been heavily involved and the line between history and autobiography can become blurred. However, it is reasonable to say that discovery itself is not a series of accidents but an inevitable product of each development stage of scientific knowledge as was also pointed out by Holden et al. (1) The discovery of RBCO (2,3) with R = Y, La, Nd, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, and Lu is no exception. In this presentation, I will briefly recount several events that were crucial to the discovery of RBCO: those before 1986 (4) that sowed the seeds in our group important to our later high temperature superconductivity effort; those in 1986 (5) that were critical to our discovery of the 93 K RBCO soon after the discovery of the 35 K high temperature superconductor by Müller and Bednorz (6); and those in 1987 when the barrier of the liquid nitrogen boiling temperature of 77 K was finally conquered.

1. G. J. Holton et al., American Scientist 84, 364 (1996).
2. M. K. Wu et al., Phys. Rev. Lett. 58, 908 (1987).
3. P. H. Hor et al., Phys. Rev. Lett. 58, 1891 (1987).
4. C. W. Chu et al., S. S. Comm. 18, 977 (1976); C. W. Chu and V. Diatchenko, Phys. Rev. Lett. 41, 572 (1978); T. H. Lin et al., Phys. Rev. B(RC) 29, 1493 (1984); J. H. Lin et al., J. Low Temp. Phys. 58, 363 (1985).
5. C. W. Chu et al., Phys. Rev. Lett. 58, 405 (1987); C. W. Chu et al., Science 235, 567 (1987).
6. J. G. Bednorz and K. A. Müller, Z. Phys. B64, 189 (1986).

[1]The work in Houston is supported in part by the T. L. L. Temple Foundation, the John J. and Rebecca Moores Endowment, and the State of Texas through TCSUH; and at LBNL by the U.S. Department of Energy.

11:51AM B1.00004 Some Prehistory to Woodstock , DOUGLAS J. SCALAPINO, University of California, Santa Barbara — I want to briefly describe the background surrounding two talks that provided a preview of the excitement that was to spill over at the '87 March APS meeting. The first was an unscheduled talk on LaBaCuO by Professor K. Kitazawa on Dec 5, 1986 at an MRS symposium on Superconducting Materials held in Boston. The second was a quasi- public disclosure by Professor Paul Chu regarding his work on superconductivity above liquid nitrogen temperatures on Feb 28, 1987 at UCSB. These talks form part of the prehistory to the what became known as the Wookstock of physics.

12:03PM B1.00005 The 1987 High Tc 'Woodstock' Session and High Tc at IBM , PAUL M. GRANT, —

12:15PM B1.00006 Bell Labs and High Tc , ROBERT J. CAVA, —

12:27PM B1.00007 High Tc and Condensed Matter Theory in 1987 , MARVIN L. COHEN, —

12:39PM B1.00008 Early High Tc Activity in Japan: The Franco Rasetti Lecture , SHOJI TANAKA, Superconductivity Research Laboratory/ISTEC, Tokyo, Japan — From 1960 to 1980, R&D of superconductivity in Japan was carried out mainly to improve A15 superconducting wires and magnets. Improvement of wires were made mainly in the National Institute for Metals, and improvements of superconducting magnets were made in the Japan Atomic Energy Research Institute for future nuclear fusion reactors, the National Railway Laboratory for future maglev trains and also in the Electo-Technical Laboratory for MHD generators. I began the research of BPBO in 1975 and at that time the research of oxide superconductors was limited only to my laboratory in the University of Tokyo. During the study of this new superconductor, we learned quite a lot on how to make ceramic samples, how to measure electrical conductivity and magnetic susceptibility at low temperatures. In 1982, Prof. S. Nakajima organized a rather small group for investigating "New Superconducting Phenomena," and I became a member of the group. In 1985, Nakajima expanded the research group to include more than 5 experimentalists and 5 theoreticians. The title of the research was "New Superconducting Materials" and the funds came from the Ministry of Education of Japan. In late October, 1986, we followed the first paper of Bednorz and Muller, and immediately found the material includes high temperature superconductor and reported it to the group meeting held in early November. In early December, we confirmed $La_{2-x}Ba_xCuO_4$ is the real high temperature superconductor, the critical temperature is 28K. I sent a copy of our paper to Prof. Beasley of California and asked to inform this fact to his colleagues. Asahi Shimbun, the biggest newspaper in Japan announced this in its science section, and then many people knew the high temperature superconductor had been discovered. Then many physicists and chemists rushed to this field very quickly and many kinds of materials were synthesized. In the Government, the Ministry of Education, the Ministry of International Trade and Industry (MITI), and the Agency for Science and Technology began to make new development plans of their own. Superconductivity fever then started in Japan. ISTEC was established in early 1988 under the support of MITI and industries.

12:51PM B1.00009 High Tc at BellCore , LAURA H. GREENE, —

1:03PM B1.00010 High Tc at Stanford , AHARON KAPITULNIK, —

1:15PM B1.00011 High Tc Superconductivity –1987 , DOUGLAS FINNEMORE, Iowa State University — The discovery of superconductivity in the cuprate class of conducting oxides brought a flash of sunlight on one of the fields condensed matter physics that many of us had thought was rather mature and fairly well understood. Alas, it was not so. In addition to opening a whole new class of materials to the study of correlated motion of charge carriers, it opened a new mind-set that materials with complex chemical bonding can lead to totally new phenomena. The tasks of materials preparation escalated, and with it came the development of totally new spectral probes of the electron gas and the electronic structure in metals. The task is to use complexity so that the interplay of adjacent correlated motion can be used to generate new phenomena that will in turn perform novel functions.

1:27PM B1.00012 Panel on Discovery of HTc –

Tuesday, March 6, 2007 2:30PM - 5:06PM –

Session L20 FHP: History of Physics; Cosmic Microwave Background Colorado Convention Center 105

2:30PM L20.00001 The Missing Part in the Story of Spin: What is the Spin Content of Stern-Gerlach? , JEAN-FRANCOIS S. VAN HUELE, Brigham Young University — Explaining the complex structure of atomic spectra was a determining factor in the development of the old quantum theory and it contributed significantly to the invention of quantum mechanics in the 1920s. Eventually it also led to the introduction of an additional degree of freedom for the electron and to the spin model of Goudsmit and Uhlenbeck. All along, information on the Stern-Gerlach effect, which is widely interpreted today as a manifestation of spin, was available. It did not seem to influence the invention or the acceptance of spin. We examine the connection between spin and Stern-Gerlach and review the lack of mutual influence in the publication record. We conclude by suggesting possible reasons for the absence of the Stern-Gerlach effect in the story of spin.

2:54PM L20.00002 The Entangled Histories of Physics and Computation , CESAR RODRIGUEZ, University of Texas, Austin — The history of physics and computation intertwine in a fascinating manner that is relevant to the field of quantum computation. This talk focuses of the interconnections between both by examining their rhyming philosophies, recurrent characters and common themes. Leibniz not only was one of the lead figures of calculus, but also left his footprint in physics and invented the concept of a universal computational language. This last idea was further developed by Boole, Russell, Hilbert and Gödel. Physicists such as Boltzmann and Maxwell also established the foundation of the field of information theory later developed by Shannon. The war efforts of von Neumann and Turing can be juxtaposed to the Manhattan Project. Professional and personal connections of these characters to the development of physics will be emphasized. Recently, new cryptographic developments lead to a reexamination of the fundamentals of quantum mechanics, while quantum computation is discovering a new perspective on the nature of information itself.

3:18PM L20.00003 Einstein's Jury: Trial by Telescope , JEFFREY CRELINSTEN, The Impact Group — While Einstein's theory of relativity ultimately laid the foundation for modern studies of the universe, it took a long time to be accepted. Between 1905 and 1930, relativity was poorly understood and Einstein worked hard to try to make it more accessible to scientists and scientifically literate laypeople. Its acceptance was largely due to the astronomy community, which undertook precise measurements to test Einstein's astronomical predictions. The well-known 1919 British eclipse expeditions that made Einstein famous did not convince most scientists to accept relativity. The 1920s saw numerous attempts to measure light-bending, as well as solar line displacements and even ether-drift. How astronomers approached the "Einstein problem" in these early years before and after the First World War, and how the public reacted to what they reported, helped to shape attitudes we hold today about Einstein and his ideas.

3:42PM L20.00004 Forty lost years of Coherent States , KAVAN MODI, Univ. of Texas at Austin — In search to satisfy the correspondence principle Schrödinger in 1926 introduced the minimum uncertainty state. Almost forty years later in 1963 Glauber put these states to use in what now know as quantum theory of optics. He also gave them the name we know them by, coherent states. And soon after Sudarshan completed Glauber's unfinished work in achieving the theory of quantum optics. Crucial mathematical work was done in these forty years to able Glauber to consider these states. I will discuss why Glauber was attracted to these states. I will talk about what it was that Schrödinger was after, and why they were forgotten for almost forty years.

4:06PM L20.00005 Reception of the Kaluza Theory in Britain, 1921-1958 , NORMAN REDINGTON, Net Advance of Physics — The Kaluza five-dimensional unified thoery was part of a programme to geometrise physics largely abandoned in the wake of the successes of quantum mechanics. However, a small group of British physicists continued to work on the subject throughout the middle decades of the 20th Century.

4:30PM L20.00006 On the origins of the Raman Effect , SOMADITYA BANERJEE[1], University of Minnesota — I explore the events that led to the discovery of the Raman effect by C.V. Raman and K.S. Krishnan at Calcutta in 1928. I also argue that, although the Raman effect was generally seen as providing strong evidence for the quantum nature of light, Raman himself was a staunch supporter of the classical wave theory of light. This work is part of a larger project, which seeks to understand the role of Raman scattering in the experimental verification of the quantum dispersion theory of Hendrik A. Kramers, which formed a bridge between Bohr and Sommerfeld's old quantum theory and Heisenberg's matrix mechanics.

[1]Program in History of Science & Technology

4:54PM L20.00007 COBE and the Absolute Assignment of the CMB to the Earth. , PIERRE-MARIE ROBITAILLE, The Ohio State University, DMITRI RABOUNSKI, Gallup, New Mexico — The FIRAS instrument on COBE initially reported a CMB temperature of 2.730+/-0.001 K (1σ). At the same time, using the 1st derivative, FIRAS reported a CMB temperature of 2.717+/-0.003 K (1σ). These two values are significantly different at the 99% confidence interval. In order to remove this significance, NASA lowered the absolute value of the CMB by changing the calibration on the external calibrator long after launch. It also raised the error bars on the second value. However, the observed difference in the CMB temperature measured by these two methods may well constitute evidence that the CMB monopole arises from the Earth. It should be assumed that a second, much weaker, microwave field exists both at L2 (the WMAP position) and at the COBE position. Motion through this much weaker field is responsible for the dipole observed. The value of the CMB temperature obtained by the 1st derivative is sensitive to motion. It is also sensitive to the complicating effect of the weak field also present at L2 when sampling the CMB temperature using FIRAS. The presence of a second weak field at L2 and the Earth is required in order for COBE to be able to resolve this situation. The PLANCK satellite should soon reveal that that CMB monopole does not exist at L2.

Wednesday, March 7, 2007 8:00AM - 11:00AM –

Session N6 FHP DPB: Condensed Matter Physics at Synchrotron Facilities: History as Prologue to the Future Colorado Convention Center 207

8:00AM N6.00001 Soft X-Ray Science – From Photon Drought to X-Ray Lasers , JOACHIM STOHR, Stanford Synchrotron Radiation Laboratory — Soft x-ray science, loosely defined as research with 200-2000 eV photons, has come a long way over the last 30 years. This talk highlights some of the scientific developments and gives a glimpse of the future. Today, high-intensity soft x-rays are available with meV spectral resolution, picosecond pulse lengths and nanoscale spot sizes. Their tunable energy and polarization allows the control of electronic core-to-valence transitions that provide access to the fundamental charge and spin properties of valence electrons in matter. Large resonant cross sections associated with absorption edge resonances provide sensitivity to small numbers of atoms, as encountered in nanostructures, ultra-thin films, interfacial layers and surfaces. Presently, the most advanced experiments use sophisticated spectro-microscopy and lensless coherent imaging techniques with nanoscale spatial and picosecond temporal resolution. On the horizon are experiments with soft x-ray lasers which, among other things, will provide femtosecond snapshots of matter.

8:36AM N6.00002 Inelastic X-ray Scattering , FRANCESCO SETTE, E.S.R.F. — This presentation is devoted to review the Inelastic X-ray Scattering (IXS) method to study atomic density fluctuations. The IXS as a complement to neutrons has been suggested for many years now with a first attempt dating back to the eighties. Only the advent of Hard X-ray third generation synchrotron light sources has allowed the establishment of IXS as a powerful routine technique for condensed matter studies. It has enabled important breakthroughs in our understanding of phonon-like excitations in disordered materials and matter at extreme conditions. The very small gauge volume and possible future advances in instrumentation allow to expect further developments in phonon microscopy.

9:12AM N6.00003 Surface Structure as a Foundation of Nanotechnology[1] , IAN ROBINSON, London Centre for Nanotechnology and Diamond Light Source — The three generations of synchrotron sources achieved to date, parasitic, dedicated and undulator-based, have each time revolutionized the field of X-ray diffraction. Surface structure determination, demonstrated (but very difficult) already with Coolidge tube sources, benefited from the enormous flux gain in the first generation, such as SSRL. Dedicated 2nd-generation sources, such as NSLS, allowed in-situ surface preparation and reliable steady beams to be available when a surface was ready to measure. Third generation sources, such as APS, enormously improved the brightness, hence coherence, and thus allowed access to the surfaces of nanoparticles. This talk will illustrate how these technological advances led to two significant scientific breakthroughs. The concept of crystal truncation rods (CTR) led to new views of how the surface is a modification of, but still an extension of the bulk crystal structure. The development of lensless coherent x-ray diffraction (CXD) imaging has allowed access to the structure of nanocrystalline materials by three-dimensional phase mapping of the particle interiors. The structural principles of these new nano materials are being investigated at present using these new methods.

[1]supported by NSF, DOE and EPSRC

9:48AM N6.00004 Magnetic X-Ray Scattering , DENIS MCWHAN, MIT — The 1980s saw the convergence of the development of synchrotron sources; the development of techniques to grow new materials layer by layer, and the realization that x-rays could probe the magnetic properties of materials. In addition to magnetic x-ray scattering, most magneto-optical effects have been extended from the visible to the soft x-ray region. Because of the tunability of both the energy and the polarization, synchrotron sources are element and site specific probes, and there are large resonant enhancements in the scattering or absorption cross sections at atomic absorption edges. Synchrotron radiation is routinely used to study the magnetic polarization of different components of a material and to separate their spin and orbital angular momentum densities. In addition synchrotron radiation can be used to determine the interplay between the atomic, orbital and magnetic ordering in materials. The history and current trends in magnetic x-ray scattering will be reviewed. Future trends include further development of the spectroscopic aspects of magnetic scattering and probing magnetism on smaller and smaller length scales and at shorter and shorter time scales.

10:24AM N6.00005 The Use of Coherent X-Ray Beams to Study the Dynamics of Soft Condensed Matter Systems[1] , SUNIL SINHA, University of California, San Diego — The study of slow dynamics in soft condensed matter systems has been of interest for many years. One of the most powerful techniques for studying dynamics at these time scales has been Dynamical Light Scattering (DLS). However, it was recognized over twenty years ago that a similar application of X-rays in order to achieve shorter length scales and avoid problems of multiple and stray particle scattering, could open up whole new areas of research. The advent of the high-brilliance third generation synchrotron X-ray sources over a decade ago made it possible for the first time to deliver an intense beam of highly coherent X-rays, enabling many new applications of X-ray scattering, some of which will be discussed. In particular, the technique of X-ray Photon Correlation Spectroscopy (XPCS), the X-ray analog of DLS, has now become an exciting new research area with applications primarily in soft condensed matter. In this talk, we shall trace the development of the use of coherent X-ray beams from the early demonstrations at the NSLS, ESRF and APS synchrotron light sources to current applications which include the study of dynamical fluctuations in colloids and polymers and in particular the study of surface fluctuations in liquid films and membranes. We shall show how XPCS has yielded interesting new results on these systems difficult if not impossible to obtain by other techniques.
I wish to acknowledge collaborations with Hyunjung Kim, Larry Lurio, Zhang Jiang, Christian Gutt, Metin Tolan, Tuana Ghaderi, Jyotsana Lal, Simon Mochrie, Miriam Rafailovich, Jonathan Sokolov, Chinhua Li, Tadanori Koga, Xuesong Jiao, Suresh Narayanan.

[1]Work supported by NSF Grant DMR-0209542.

Thursday, March 8, 2007 8:00AM - 10:48AM –

Session U20 FHP: History of Physics; General Physics Colorado Convention Center 105

8:00AM U20.00001 Compartmentalization of Science, Power and Social Responsibility as exemplified in the life of J. Robert Oppenheimer. , WILLEM VAN DE MERWE, TODD REAM, Indiana Wesleyan University — Many biographies of J. Robert Oppenheimer have recently been published; each emphasizing some different aspects of his life. Physicists can learn much about physics in the early 1900s and about the practice of physics in society from these biographies. Oppenheimer, the "father of the atomic bomb," seems to have struggled early in life with finding a framework for understanding himself and for finding guidance for making responsible decisions. In this paper, we will briefly consider his upbringing in the Ethical Cultural School, his studies in physics in Europe, passion for poetry, including the influence of the Bhagavad-Gita, and his initial sympathizing with left-wing political groups. In this context, we will consider whether a quality liberal arts education might help physics students formulate their framework to guide them throughout the course of their career in science.

8:24AM U20.00002 The English Revision of The Blegdamsvej Faust , KAREN KECK, Net Advance of Physics — At the 1932 meeting of quantum physicists at Niels Bohr's Copenhagen Institute, participants staged an updated version of Goethe's Faust with Pauli tempting Ehrenfest to accept a chargeless, massless particle, then called the neutron. The most widely read translation of the anonymous Faust: Eine Historie appears in George Gamow's Thirty Years that Shook Physics; his second wife, Barbara, translated the text. Her work masterfully communicates the parallels between Goethe's original and the anonymous parody, but it also rearranges and adds to the parody to strengthen those similarities and to reflect George Gamow's views. The changes emphasize the international and cooperative aspects of physics.

8:48AM U20.00003 ABSTRACT WITHDRAWN –

9:12AM U20.00004 A 18^{th} century thermometer recipe: The begin of experimental physics courses in Guadalajara, México?[1] , DURRUTY JESUS DE ALBA MARTINEZ, Universidad de Guadalajara, CUCEI, Instituto de Astronomia y Meteorologia — As a part of the Special Funds Collection of the Jalisco's State Public Library "Juan José Arreola" is a physics course manuscript attributed to Francisco Javier Clavigero s.j. (1731-1787), teacher at the Jesuit *Colegio de Santo Tomás* (a college-level institution in Guadalajara before the university opening), inside of the vellum bounded volume is a unbounded folio containing instructions on how to build a thermometer. In this work are discussed some evidences of the belonging of such folio to the manuscript in spite of their differences (it is written in Spanish not in Latin as the whole), we also describe the process to construct the thermometer and how could be the experimental part of the physics course. Also is briefly exposed the importance of the educational role of Clavigero as a builder of the concept of *mexicanity*.

[1]The author acknowledges to the authorities of the Universidad de Guadalajara by their support, specially CUCEI Academic Services Office.

9:36AM U20.00005 Historical perspectives on respiratory fluid dynamics and flow phenomena deep in the lung , JOSUE SZNITMAN, Institute of Fluid Dynamics, ETH Zurich, AKIRA TSUDA, Harvard School of Public Health — Next year marks 30 years since the first review on pulmonary fluid dynamics was published (TJ Pedley, *Ann Rev Fluid Mech*, 1977). Since the early publications on flow resistance in airways (F Rohrer, Pflugers Arch, 1915), much research has been conducted to deepen our understanding on the role of flow convection in the lung. While many investigations have been aimed at elucidating the nature of airflow in the upper (nose, larynx) and conducting airways (trachea down to the 15^{th} bifurcation generation of the airway tree), comparatively little effort has dealt with airflow in the deeper regions of the lung, characterized by 300 million pulmonary alveoli providing gas exchange with blood. For very long, it has been argued that airflow velocities in the alveolar region are negligible due to a large increase in the total cross-sectional area at that level. This is still reflected today in medical teaching. However, in the last 20 years, new theories have tackled the experimental observation of convective mixing of inhaled particles deep in the lung. These theories suggest that convective airflow in the alveolar region is indeed relevant. In particular, alveolar flows are much more complex than previously thought and may exhibit properties of chaotic flows. Such discoveries have led to a small revolution in our common understanding of respiratory flows deep in the lung.

10:00AM U20.00006 Sustainability and the Use of Non Renewable Resource, Australia as an Example , ALBERT A. BARTLETT, University of Colorado at Boulder — A government minister in Australia writes that Australian coal will last "110 years at present rates of production." (1) But production is growing 5% per year, so the life expectancy will be less than 110 y. Assume production follows a Gaussian Hubbert curve. We can construct a family of curves for the future path of P(t) vs. t, each of which is consistent with the 110 y. This envelope of this family of curves divides the graph of P(t) vs. t into allowed and forbidden areas. The curve with the current value of dP/dt is then the most probable future path of P(t). The curve reaches a maximum and then rapidly declines to zero. Australia's growing population and these Hubbert curves combine to indicate frightening non-sustainability. Sustainability requires a curve of P(t) that declines exponentially with k = (1/110) per y.(2)
(1) Ian Macfarlane, World Energy, V.8, 112-117, 2005
(2) A.A. Bartlett, Am.J.Phys., V.54, 398-402, 1986

10:12AM U20.00007 Dynamics of the 1,n compound pendulum[1] , JOHN STARRETT, JOHN KORBIN, New Mexico Institute of Mining and Technology — We analyze the motion of the $1, n$ compound pendulum, that is, a pendulum system with one upper and n lower pendula. In contrast to the more well known $1, 1$ pendulum (the double pendulum), the $1, n$ pendulum exhibits an exchange of energy between the lower pendula, which can lead to bursts of over-the-top motion for one or more of the lower pendula as their energy is suddenly pumped up from a lower energy state. The $1, n$ systems can exhibit chaotic dynamics, but as $n \to \infty$, the motion of the upper pendulum approaches zero and the lower pendula become independent of each other, and the system ceases to be chaotic.

[1] A movie of the 1,2 compound pendulum may be seen on the YouTube.com video site at http://www.youtube.com/watch?v=2JzMJNMYbRw

10:24AM U20.00008 ABSTRACT WITHDRAWN —

10:36AM U20.00009 myADS-arXiv: A fully customized, open access virtual journal , MICHAEL KURTZ, GUENTHER EICHHORN, EDWIN HENNEKEN, ALBERTO ACCOMAZZI, CAROLYN GRANT, DONNA THOMPSON, ELIZABETH BOHLEN, STEPHEN MURRAY, Harvard-Smithsonian Center for Astrophysics — **myADS-arXiv** is a collaboration of the Astrophysics Data System group at the Smithsonian Astrophysical Observatroy and the arXiv group at Cornell University. The **myADS-arXiv** service provides a listing of those articles in physics or astronomy which have been posted in the last week which are of most interest to you. In essence **myADS-arXiv** is a free, weekly, fully customized (for each individual user) open access virtual journal which covers the most important, most recent papers in physics and astronomy. **myADS-arXiv** follows the same format as the existing **myADS-Astronomy** and **myADS-Physics** notification services. These services provide access to the most interesting (to you) recent journal articles in physics and astronomy. These are done in collaboration with nearly every publisher of physics or astronomy journals, including APS, AIP, AAS, RAS, IoP, EDP, World Scientific, Wiley, Springer, and Elsevier.