

CURRICULUM VITAE (May 2013)

Catherine Jeanne CESARSKY

FAMILY STATUS

Married, two children

EDUCATION

- ◆ Universidad de Buenos Aires, Facultad de Ciencias Exactas y Naturales, Licenciada en Ciencias Fisicas 1959 - 1965
- ◆ Harvard University, Cambridge, Mass. PhD in Astronomy 1966 - 1971

University fellowships and assistantships

- ◆ Ayudante de 2a en Fisica, Universidad de Buenos Aires 1961 – 1963
- ◆ Beca del Consejo Nacional de Investigaciones Cientificas y Tecnicas 1963 – 1965
- ◆ Teaching Fellow at Harvard University: 1966 - 1970
 - Pickering Fellowship 1966 - 1967
 - Harvard Scholarship 1968 - 1969
 - Pickering Fellowship 1969 – 1970
- ◆ M. Weyerhaeuser Jewett Research Fellowship 1970 - 1971

PROFESSIONAL ACTIVITIES

- ◆ Instituto Argentino de Radioastronomia, Research Fellow 1965 – 1966
- ◆ California Institute of Technology, Astronomy Department, Research Fellow 1971 – 1974
- ◆ Staff member of the Service d'Astrophysique (SAP), Direction des Sciences de la Matière (DSM), CEA Saclay 1974 – 1978
- ◆ Head of the theoretical group of the SAP 1978 – 1985
- ◆ Head of the SAP 1985 - 1993
- ◆ Director of DSM¹ 1994 – 1999
- ◆ Director General of ESO² 1999 – 2007
- ◆ Senior Scientist at ESO 2007-2008
- ◆ Directeur de Recherche Émérite and Conseiller scientifique at DSM, CEA and Chercheur associe, GEPI, Observatoire de Paris 2008-2009
- ◆ High Commissioner for Atomic Energy, France 2009-2012
- ◆ High level Advisor at CEA 2012-now

¹ At the time, the Direction des Sciences de la Matière encompassed at the CEA (Commissariat à l'Energie Atomique), activities of basic research in physics, chemistry, astrophysics and earth sciences. It comprised 3000 scientists, engineers, technicians, visitors, graduate students and administrative personnel 1800 of which were CEA agents, on four geographical locations: Saclay, Cadarache, Grenoble, Caen. The annual budget was about 1600 Million Francs.

² ESO, the European Organisation for Astronomical Research in the Southern Hemisphere, is an international organisation supported by fourteen European countries, which develops and operates observatories (La Silla, Paranal with the very Large Telescope) in the Southern Hemisphere and is responsible for the European component of ALMA and the studies for the ELT. The annual budget is about 120 million Euros

The High Commissioner for Atomic Energy is an advisor to the French government for science and energy issues

SABBATICAL LEAVES

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|--|-----------------------|
| ◆ Institute of Astronomy, Cambridge | May 1976 |
| ◆ Weizmann Institute, Israel | May 1977 |
| ◆ University of Chicago | May – June 1978 |
| ◆ ESO, Garching | Nov. 1981 |
| ◆ University of California at Berkeley | Summers 1982 and 1989 |

PUBLICATIONS

Author of close to 150 refereed scientific papers; 10660 citations, H=53

MAIN SCIENTIFIC RESULTS

- ◆ Main sequence model stars: Models used for years in Allen's classical Astrophysical Quantities
- ◆ Theoretical work on the propagation of galactic cosmic rays and their resonant interactions with hydromagnetic waves. Proponent of the energy dependent leaky-box model for galactic propagation; connexion with interstellar turbulence and with the heating of the interstellar medium
- ◆ Studies and observations of radio recombination lines from the diffuse interstellar medium; the role of cold regions
- ◆ Determination of the column of interstellar matter to the galactic center through studies of X-ray absorption
- ◆ Interpretation of results on cosmic ray composition: implications for the origin and the propagation of these particles. Proponent of the idea that debris of interstellar grains are preferentially picked up and injected into the cosmic ray acceleration mechanism.
- ◆ Diffuse gamma ray emission: a new measure of the density of the interstellar gas and of the spectrum of low energy cosmic ray electrons. Penetration of cosmic rays in molecular clouds
- ◆ Parker instability: Demonstration that curved equilibria of the cosmic ray, magnetic field and interstellar gas system, linked by flux conservation to unstable horizontal equilibria, are also unstable. Establishment of a stability criterion applicable to all type of horizontal equilibria
- ◆ Particle acceleration in astrophysical shocks. In particular, establishment of an upper limit for the energy that cosmic rays can gain from the interaction with a supernova shock. Proponent of stellar winds of WR stars as accelerators of cosmic rays in the 10^{15} GeV range. Reacceleration of cosmic rays in the interstellar medium. The problem of the highest energy cosmic rays; role of galaxy collisions
- ◆ Coordination of the ISOCAM Central Programme: infrared emission from the diffuse interstellar medium, dust formation in supernovae, infrared emission from high energy sources, star formation in molecular clouds and in galaxies, etc.
- ◆ Principal Investigator of the ITGES collaboration, which conducted deep surveys with ISOCAM. These deep surveys revealed a population of Luminous Infrared Galaxies with median redshift ~ 0.8 , which are responsible for the bulk of the energy in the Cosmic Infrared Background.
- ◆ Follow-up studies of these objects and similar, more distant ones, with various telescopes, including VLT, Spitzer and Herschel; in particular, participation in the GOODS survey with VLT and with Herschel

SPACE EXPERIMENTS

- ◆ Co-Investigator of
 - COSPIN on ULYSSES
 - GOLF on SOHO
 - EPIC on XMM-Newton
 - CIRS on CASSINI
- ◆ Scientific associate of ISGRI, on INTEGRAL and of Planck
- ◆ Principal Investigator of ISOCAM on ISO

SOME OTHER ACTIVITIES RELATED TO SCIENTIFIC RESEARCH

◆ Member of the Astronomy Working Group at the European Space Agency	1977 – 1980
◆ Chair of the Astronomy and Astrophysics Division of the European Physical Society	1980 – 1983
◆ Editor in Chief of the Journal Astronomy and Astrophysics	1982 – 1985
◆ President of IAU Commission n° 48: High Energy Astrophysics	1985 – 1988
◆ Chair of the Observing Programme Committee of the European Southern Observatory	1992 – 1993
◆ Vice Chair of the ESO Council	1993 – 1994
◆ Member of the Conseil Supérieur de la Recherche et de la Technologie, French Ministry of Research	1994 – 1996
◆ President of the French Society of Professional Astronomers	1994 – 1996
◆ Vice President of the European Astronomical Society	1993 – 1997
◆ Vice President of the International Astronomical Union	1997 – 2003
◆ Member of the board of the European Research Advisory Board	2001 – 2004
◆ First President of EIROFORUM	2001- 2002
◆ Honorary Member of the American Astronomical Society	2002 - now
◆ President elect of the International Astronomical Union	2003 – 2006
◆ Member of the European Research Advisory Board	2004 – 2007
◆ President of the Comité des Programmes Scientifiques du Cnes (Centre National d'Etudes Spatiales)	2005 – now
◆ President of the International Astronomical Union	2006 –2009
◆ Chair of the IAU Executive Working Group on International Year of Astronomy 2009	2006-2009
◆ Member of the Committee on Scientific Planning and Review (CSPR) of ICSU	2006-2011
◆ Member of the Board of IST-Austria	2007-2012
◆ Panel Chair of the ERC Starting Grant, PE7 - Universe Science	2007-now
◆ Member of the Steering Committee of the European Research Council	2008
◆ Chair of the ESS Site Review Committee	2008-2011
◆ Member of the ITER Briscoe Panel	2008
◆ Panel Member of the ERC Starting Grant, PE9- Universe Science	2008-2009
◆ Chair of the OTAC of XMM-Newton	2009-2010
◆ Chair of the EURATOM Consultative Committee for fusion	2009-2012
◆ Member of the CERN Council	2010-now
◆ Chair of the Science Board of the Korea Research Council of Fundamental Science and Technology	2010-now
◆ Chair of the ERC Synergy Panel	2010-now
◆ Chair of the High level Council on Large Scale Infrastructures, France	2012
	2013-now

She also participated, in 1994, to the *Report on the main objectives of research in France* for the French Ministry of Research. In the framework of the "Consultation Nationale" conducted by the Minister of Research François Fillon, she chaired the Bordeaux colloquium: *Recherche fondamentale: conforter les atouts de la France*.

In 2008-2009, she has been a member of the jury for the selection of sites of the "Plan campus" of Minister Pécresse, and in 2010 of the Commission Juppé-Rocard on the "Grand Emprunt", which defined the priorities for future investments of the French government.

C. Cesarsky is or has been a member of the Visiting Committees of Harvard College Observatory, Space Telescope Science Institute, European Southern Observatory. She also participates or has participated to the Haut Comité de l'Observatoire de Paris, the Fachbeirat of the Max Planck Institut für Kernphysik (Heidelberg), as well as those of the Max Planck Institut für Astrophysik (Garching)(chair) and the Max Planck Institut für Extraterrestrische Physik (Garching), the Max Planck Institut für Radioastronomie (Bonn), ESRON (Netherlands)(chair), ASTRON (Netherlands)(chair), Institut d'Astrophysique de Paris (chair), Ecole normale de Lyon, ASIAA at Academia Sinica in Tai Pei, Physics at Ecole Normale Supérieure in Paris, Institut d'Astrophysique Spatiale at Orsay, of the APC Laboratory in Paris 7(chair), of the Department of Physics in Oxford University, etc.

She is a member of the Academia Europaea, of the Académie des Sciences de l'Institut de France and of the International Academy of Astronautics. She is a Foreign Associate of the National Academy of Sciences of the United States of America, a Foreign Member of the Royal Swedish Academy of Sciences and a Foreign Member of the Royal Society of London.

AWARDS

COSPAR Space Science Award 1998

Prix Janssen de la Société Astronomique de France 2009

Doctorate Honoris causa from Geneva University 2010

DISTINCTIONS

Chevalier de l'Ordre National du Mérite (1989)

Chevalier de la Légion d'Honneur (1994)

Officier de l'Ordre National du Mérite (1999)

Officier de la Légion d'Honneur (2004)

Commandeur de l'Ordre National du Mérite (2008)

Commandeur de la Légion d'Honneur (2011)