

Curriculum Vitae

Charles Mattias (“Matt”) Mountain, B.Sc., A.R.C.S., Ph.D., D.I.C., F.R.A.S.

Current Position: Director, Space Telescope Science Institute

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Professional History

Space Telescope Institute Director: Sep ‘05 - Present

University of Oxford Visiting Professor, Department of Astrophysics: Appointed May ‘05

Gemini Director: Dec ‘94 - Aug ‘05

- Appointed Gemini Observatory Director, Dec ‘94, five-year terms renewed in Dec ‘99 and Dec ‘04

Dec ‘99 - Aug ‘05

- Responsible for leading the Operations and Development program of the Gemini Observatory.
- In 2004 the combined Gemini Operations, Development and Instrument budget was \$33.4M, and the Observatory staff numbered 154
- In 2004, both Gemini telescopes allocated more than 70% of available time to science observations, with Gemini North reaching 90%. Both telescopes are now producing world-class results
- Recruited a world-class operations team
- Initiated and coordinated a major strategic planning process for the future instrumentation program (the ‘Aspen Process’), and the Gemini operations model. The result of this three year process has been to secure the unanimous agreement of the six partners Agencies to increase the potential 2006 Operations, Development and Instrument Budget to \$46M, with a staff increase to ~180, and an agreed funding envelope out to 2010
- Instigated the Gemini-NOAO “New Initiatives Office” and resulting 2-year GSMT 30m study. The success of this study led to the inclusion of AURA in the Thirty Meter Telescope project

Dec ‘94 - Dec ‘99

- Direct responsibility for the construction and commissioning of the two Gemini telescopes on Mauna Kea, Hawaii and Cerro Pachon, Chile, accomplished on schedule within a fixed budget of \$184M
- Direct responsibility for formulating, implementing and running the operations and development of the Gemini Observatory
- Raised the funding for and oversaw the construction and implementation of the Hilo and La Serena base facilities and operations infrastructure
- Created the ‘Adaptive Operations’ concept, and initiated the implementation of the requisite science, engineering and transparent business systems required for an Observatory operating simultaneously out of Hawaii and Chile
- Led the establishment of the Gemini time allocation, observation execution and data rights processes and policies
- Developed the Gemini specific science staff tenure and parallel track practices and policies.
- Built up a world-renowned adaptive optics group to keep the Gemini telescopes at the forefront of observational IR astronomy
- Persuaded the seven science agencies funding Gemini to increase the instrumentation budget by 50% and initiated a new procurement paradigm, with the Observatory as ‘customer’

Research Interests

Star formations in galaxies (including our own), capabilities of “second generation” telescope

JWST Telescope Scientist & SWG member: appointed by NASA, Oct '02

- Worked with the Project to convince the SWG to descope the JWST primary mirror to a more achievable diameter
- Represented the scientific interests of JWST on the Mirror Review Board that led to the selection of Beryllium mirrors
- Continuing work with the Project, NASA, Instruments Teams and SWG to ensure telescope performance meets science requirements in a highly cost constrained environment

TMT (Thirty Meter Telescope) Board Member: appointed by AURA, Jun '03

US Delegate, OECD Global Science Forum on Large Projects in Astronomy & Astrophysics: Dec '03 - Mar '04

- Led concluding discussion on “Planets and Life – prospects over the next two decades”
-

Gemini Project Scientist: Nov '92 - Dec '94

- Provided the scientific oversight and direction to the Project Team leading up to the successful Primary Mirror Assembly PDR in December 1994
 - Created a new instrument plan for the evolving and expanded Gemini partnership
 - Instigated a pragmatic adaptive optics program and had this crucial capability included as part of the Gemini Science Requirements
 - Worked with the Director to restructure the Project within budget constraints, resulting in a 25% reduction in Project staff over 1993
 - Descoped the telescope design to sharpen the scientific goals and reduced costs of the telescopes by ~\$35M
 - Initiated a Gemini Operational Concept Definition document that provides the basis for new observational and operational approaches such as queue observing
 - Enhanced the Project's profile through Newsletter articles, talks at national astronomy meetings
-

UKIRT Development Program: Jan '91 - Nov'92

- Coordinated and planned the UKIRT Development program to put active and adaptive optics on UKIRT with the Royal Observatory Edinburgh and Max Plank Institute fur Astronomic. Led program in Hawaii from January 1992
- Obtained the initial funding for the 8-20 micron Spectrometer Project for UKIRT

Research Interest

IR Spectroscopy of the Galactic Center, low luminosity dwarfs and Photo-Dissociation Regions

Project Scientist, Royal Observatory Edinburgh: Oct '85 - Jun '91

- Led a team of 10-15 engineers, optical designers and software specialists, controlling a capital budget of \$1.2M to produce the first 1 – 5micron array spectrograph for UKIRT, CGS 4 -- delivered on schedule and within the allocated budget (~\$4.5M)
- Initiated and participated in several scientifically driven technological developments
- Specified and drove the development of the queue based observing system, which produced automatically reduced data at the telescope
- Developed a commissioning strategy that resulted in scientific results on the first night. Users from the UK and US have now been assigned over 500 nights of telescope time using this instrument

Research and Thesis Supervision

Star-formation processes, extragalactic star-formation, instrumental techniques directly supervising four Ph.D. students

Teaching, University of Edinburgh

Gave postgraduate courses on CCD's and IR Technology & Techniques for Astronomy

ROE Research Fellow, Edinburgh – Nov '84 - Oct '85

- Undertaking research at the major facilities on star-formation processes
- Consulted on numerous instrumentation projects such as the optical design of the camera for UKIRT, ISOCAM, and began the design of a new infrared spectrometer

NATO/SERC Research Fellowship – Jan '83 - Oct '84

- Studied the Deuterium abundance in molecular clouds using IR spectroscopy at Imperial College
-

Educational History

- Ph.D., DIC, “*Astronomical Spectrometry in the Near-Infrared*”
Imperial College of Science and Technology, London University, 1983
- B.Sc. (1st class), A.R.C.S., in Physics, Imperial College of Science and Technology, London University, 1979

Affiliations

- Fellow of the Royal Astronomical Society
- Fellow of the American Astronomical Society
- Fellow of the American Association for the Advancement in Science
- Member of SPIE, The International Society for Optical Engineering

Awards

- Gabriela Mistral Medal for excellence in education from the Chilean Ministry of Education for the Gemini StarTeachers program (the first time this award has been made outside of Chile), September, 2003

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Papers in Press

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Roy, Jean-Rene; Mountain, C. M.

Organizations and Strategies in Astronomy – Vol. 6, Ed. A. Heck, Springer (2005)

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Geballe, T. R.; Ramsay Howat, S. K.; Timmermann, R.; Bertoldi, F.; Mountain, C. M.

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A spectroscopic study of IRAS F10214+4724

Serjeant, Stephen; Rawlings, Steve; Lacy, Mark; McMahon, Richard G.; Lawrence, Andy; Rowan-Robinson, Michael; Mountain, Matt

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Fluorescent Molecular Hydrogen in the Extragalactic Giant H II
Region NGC 5461

Puxley, P. J., Ramsay Howat, S. K., Mountain, C. M.

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The Revolution in Telescope Aperture

C. M. Mountain, F. C. Gillett

Nature, **395supp**, A23, 1998

Observations of Millimetre-Wavelength Hydrogen Recombination Lines in the Galaxy NGC253

P.J. Puxley, C.M. Mountain, P. W. J. L. Brand, T. Moore, N. Nakai

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Infrared Spectrophotometry of Bright Carbon Stars

C. Lazaro, P. L. Hammersley, R. E. S. Clegg, A. E. Lynas-Gray, C. M. Mountain, A. Zdrozny, M. J. Selby

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H. Jones, A. Longmore, R. Jameson, C. M. Mountain

Monthly Notices of the Royal Astronomical Society, **267**, 413, 1994

Pure Fluorescent Emission from Hubble 12

S. K. Ramsay, A. C. Chrysostomou, T. R. Geballe, P. W. J. L. Brand, C. M. Mountain

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C. Aspin, H. E. Schwarz, M. G. Smith, R. L. M. Corradi, C. M. Mountain, G. S. Wright, S. K. Ramsay, D.

Robertson, S. M. Beard, D. A. Pickup, T. R. Geballe, A. Bridger, D. Laird, D. Montgomery, R.

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Non-Thermal Emission in the Atmosphere above Mauna Kea

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The (C-12)O to H₂ ratio in the centre of M82

P. A. Smith, P. W. J. L. Brand, C. M. Mountain, P. J. Puxley, N. Nakai

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C. Lazaro, A. E. Lynas-Gray, R. E. S. Clegg, C. M. Mountain, A. Zdrozny

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J. K. Davies, T. G. Hawarden, C. M. Mountain
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R. F. Carswell, C. M. Mountain, D. J. Robertson, S. M. Beard, A. R. Glendinning, D. C. Laird, L. C. Lawrence, D. Montgomery, G. Pentland, D. A. Pickup, I. A. Smith, J. A. Bailey, A. Bridger, M. M. Casali, T. R. Geballe, P. Puxley, M. G. Smith, G. S. Wright, S. K. Ramsay, A. C. Baker, B. R. Espey, M. J. Ward
Astrophysical Journal, **381**, L5, 1991

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P. J. Puxley, T. G. Hawarden, C. M. Mountain
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P. J. Puxley, T. G. Hawarden, C. M. Mountain
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Astronomy and Astrophysics, **203**, 341, 1988

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D. E. Blackwell, A. J. Booth, A. D. Petford, S. K. Leggett, C. M. Mountain, M. J. Selby

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A Search for OH Maser Emission from Spiral Galaxies

S.W. Unger, J. M. Chapman, J. M.-Cohen, T. G. Hawarden, C. M. Mountain

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C.M. Mountain, M. J. Selby, A. Zadronzny, T. Hartquist

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