the time. Another conference proceeding I have often cited[8] has, at the moment of writing, 89 citations according to ADS, more than most refereed-journal papers.

The Moriond conferences have the best of all worlds: a proper printed book of (relatively long) conference proceedings (distributed to the participants but also available to others), a freely available PDF of the same[9], and the slides of the individual contributions on the web. (Alas, some other conference websites have disappeared after a few years.) The facts that there are only plenary sessions, that everyone sleeps and eats in the same hotel at the conference venue, and that there are more hours of talks in the week (six full days and a closing session on the seventh) despite a break of four hours or so each afternoon (with the opportunity for skiing) make them my favourite serial conference, and they are better organized than most high-profile one-off conferences.

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References

(1) S. Phillipps, *The Observatory*, **144**, 93, 2024.
(2) https://moriond.in2p3.fr/2024/Cosmology/
(3) C. Lawrence, in C. S. Kochanek & J. N. Hewitt, eds., *Astrophysical Applications of Gravitational Lensing* (Kluwer, Dordrecht), 1996, p. 299.
(4) P. Helbig, *The Observatory*, **134**, 376, 2014.
(5) P. Helbig, *The Observatory*, **134**, 377, 2014.
(6) J. Baggott & J. L. Heilbron, *Quantum Drama* (Oxford University Press), 2024.
(7) P. Helbig, *The Observatory*, **144**, 257, 2024.
(8) R. Penrose, in E. J. Fenyves (ed.), *Fourteenth Texas Symposium on Relativistic Astrophysics* (New York Academy of Sciences), 1989, p. 249.
(9) https://moriond.in2p3.fr/previous-sessions.html

REVIEWS

Her Space, Her Time: How Trailblazing Women Scientists Decoded the Hidden Universe, by Shohini Ghose (MIT Press), 2023. Pp. 248, 22·5 × 15 cm. Price $29·95 (about £24) (hardbound; ISBN 978 0 262 04831 6).

Author Shohini Ghose is herself Professor of Physics and Computer Science at Wilfred Laurier University in Canada, and has been active in women-in-science issues for some time. Here she addresses seven topics in the recent history of physics, astronomy, cosmology, and such, focussing on contributions by women to our present understanding. You will find here many of the astronomers you might expect — Annie J. Cannon, Cecilia Payne-Gaposchkin, Henrietta Leavitt, Margaret Burbidge, Maria Mitchell, and Vera Rubin, with, I think, no major surprises in how the author describes their best-known contributions. At least the tip of the physics pillar might (should!) also be familiar — Lise Meitner (fission, who should have shared Otto Hahn's 1944 Chemistry Nobel), Maria Salomea Sklodowska (who received two Nobels, Chemistry and Physics, as Marie Curie), and C. S. Wu (Wu Chien-Shiung, the experimenter who found parity non-conservation as predicted by C. N. Yang and T. D. Lee, who got the prizes).

Surprises and potential disagreements arise when one looks more closely at who's in, who's out, and how the work and the person get classified. There is Margaret Burbidge (with her birth surname misspelled as Peachy rather than Peachey), sharing a chapter called 'About time: discoverers of the Big Bang' with Henrietta Leavitt. But Margaret was not a strong supporter of a hot, dense early Universe even in 1957 when the monumental B^2FH, 'Synthesis of the Elements in Stars', was published, and later in life definitely favoured some sort of quasi-steady-state or cyclic universe without a Big Bang starting time for everybody.

The chapter 'Escape Velocity: Pathfinders in Space Exploration' indeed includes women who worked for NASA and other space agencies (Valentina Tereshkova makes the cut; Sally Ride does not). Recently hailed Katherine Johnson is there, though not featured among "the Women who Powered NASA's Space Program". Most strangely, that chapter includes a Turkish woman whose name appears in IAU directories as Dilhan Ezer-Eryurt. Ghose calls her Eryurt in the text; lists her publications as Ezer, and apparently thinks that having worked at Goddard Institute of Space Studies makes her a contributor to space science. Actually her major contribution to astrophysics was calculations of the structure and evolution of stars with $Z = 0$, carried out with A. G. W. Cameron. She is sadly no longer with us, but was my 'go to' person in Turkey earlier in the century when American physicists were worried about conditions for scientists there.

The story in Chapter 6, 'Forces of Nature: the subatomic photographers', is a bit more complicated than the version here. Yes, Marietta Blau was unquestionably a/the pioneer of using nuclear emulsions as detectors for high-energy particles, and the Nobel went to Cecil Powell for using such emulsions to find mesons (as predicted by Yukawa who had won the previous year). What I missed were the contributions of Occhialini (who also worked with Patrick Blackett on his Nobel-graced work) and also in Powell's cosmic-ray group at Bristol, Cesare Lattes, who carried the technique back to his native Brazil. The Brazilian physicist in that chapter is Elisa Frota-Pessoa, who also worked with nuclear emulsions, and it is impossible not to suspect that she had learned of them from Lattes. I also felt in reading that chapter that author Ghose had not been hard enough on Herrtha Wambacher, Blau's student and apparently a loyal Nazi, who arguably tried to take more of the credit for nuclear-emulsion work away from Blau (who was in Vienna in 1938) than she, Wambacher, deserved.

Lots of surprises — Otto Hahn won a medal for his WW I service at the Battle of Ypres. The death toll in the WW II Bengali famine was apparently more like four million people than the three million I had remembered. The author is apparently not aware of programmes at many universities (including UCI) that try to arrange "spousal hires" to facilitate recruiting new faculty members (one of our best astronomers arrived as the husband of a woman selected by another department!). She apparently also is not aware that Albert Abraham Michelson did his prize-winning work in the US, and she describes Millikan as our first physics Nobelist.

The author describes a D.Sc. degree as the equivalent of a PhD (but don't they generally get to wear nicer-coloured academic robes?). On the other hand, she does an unusually good job of tracing out the path of stellar nuclear reactions from hydrogen to iron and beyond. A few other items left me wanting to verify names, dates, and all, for instance the statement that Ray Davis detected solar neutrinos in 1965, and that Otto Frisch thought of using "pure uranium" for a fission bomb, Frisch and Rudolf Peierls concluding that a few kilograms would be enough. —VIRGINIA TRIMBLE.

Quantum Drama: From the Bohr–Einstein Debate to the Riddle of Entanglement, by Jim Baggott & John L. Heilbron (Oxford University Press), 2024. Pp. 335, 24·5 × 16·5 cm. Price £26·99/$32·99 (hardbound; ISBN 978 0 19 284610 5).

Jim Baggott* is known mainly as a writer of popular-science books; the late John L. Heilbron as a historian of science. Heilbron lived in Copenhagen 1962–1963, he interviewed many of the founders of quantum mechanics, and archived and microfilmed their correspondence; he has also written a biography of Bohr[3]. They have teamed up for something in-between, a popular history-of-science book, more detailed than most popular-science books and a breezier read than most technical history-of-science monographs. It covers the time from the origins of quantum theory up to the present. Obviously, it can't be even close to a complete account in only a few hundred pages. Rather, as the subtitle states, it concentrates on the idea of entanglement, covering various interpretations of quantum mechanics, philosophical issues, experiments, and practical applications.

Except for the last with six, each of the four parts (which follow a nine-page prologue) has four chapters. The first part covers the early days (roughly from Planck's first work, conveniently in the year 1900, until the end of the 1920s) of quantum mechanics and provides a basic introduction to the topic. The latter can be found in many other books; the former, with more emphasis on the people involved, is not as common in books at this level. The second concentrates more on the main theme of the book, covering events from the fifth Solvay conference in 1927 until about the end of the 1930s, with the famous Einstein–Podolsky–Rosen paper and Schrödinger's cat playing prominent roles. Quantum mechanics is no longer just a system of rules for calculating experimental quantities, but has become a philosophical subject, with topics such as the measurement problem, the reality (or not) of macroscopic superpositions, the uncertainty relation, and so on, occupying the best minds in the field, not always agreeing. The most famous such disagreements are the famous Bohr–Einstein debates. (I recently read that the traditional view is, in the physics community, that Bohr is seen as having been right and Einstein wrong, whereas in the philosophy community it is the other way around. However, that simple dichotomy is as much an oversimplification as each premise on its own.) The title comes from a quotation from Bohr: "At the next meeting with Einstein ... our discussions took quite a dramatic turn." The third part, picking up after the distraction of World War II (in which many of the key players were involved in more practical pursuits) and continuing until about the end of the 1950s, introduces the alternative approaches of Bohm and Everett. Interesting is the degree to which some of the 'non-Copenhagen' pioneers followed those new

*I reviewed[1] a previous book[2] by Baggott in these pages.