



*Advancing
Astronomy and
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Professor John Bahcall of the Institute for Advanced Study, Princeton

Citation for the award in 2003 of the Gold Medal of the Royal Astronomical Society

Ever since the early 1960s John Bahcall has been a brilliant and prolific contributor to many branches of astrophysics, outstanding for the quality, originality and deep thought as well as the quantity of his output.

Through his interest in nuclear astrophysics he became deeply involved in the search for solar neutrinos, both predicting very accurately the sensitivity of the chlorine detector built by Ray Davis and developing greatly improved solar interior models which have withstood the test of recent results in solar seismology. Thus he has been able to argue convincingly that the problem lies in neutrino physics, as was subsequently confirmed by other experiments. His book on Neutrino Astrophysics is a classic, and he has continued to play an important role in the planning of more recent neutrino experiments involving gallium and SNO.

After the discovery of quasars, John made many important contributions to the interpretation of both their emission and absorption lines, extending the atomic data base with his own quantum-mechanical calculations and using the degree of excitation and ionization as a clue to ambient conditions. He was among the first to argue that most of the absorption lines come from intervening systems. More recently he has been actively involved in the organization of the Space Telescope Science Institute and is a leading user of HST in many fundamental applications and broad collaborations: the HST Quasar Absorption Line Key Project, the application of star counts to studies of the structure of the Galaxy, imaging quasars and describing their host galaxies and deep photometry of globular clusters. At the same time he continues to offer theoretical insights into current issues in nuclear astrophysics such as the nature of gamma-ray bursts.

In the year in which Ray Davis has been (deservedly) awarded the Nobel prize for his work on solar neutrinos, it seems a good opportunity for the Society to honour John Bahcall, both for his part in that work, which was indispensable, for his many other outstanding contributions to astrophysics and for the very valuable work he has done for the astronomical community.