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Foreword

This special issue is centred around the life and work of S. Pancharatnam, who made some outstanding contributions to optics, first, in the fifties, in the area of polarization and coherence phenomena in the classical regime, and then, in the sixties, in the study of atoms simultaneously interacting with resonant radiation and low frequency magnetic fields. His work in the latter area drew international attention before it was cut short by his early death at the age of thirty-five. One of his early papers on polarization and coherence was reproduced in the well-known Mandel-Wolf collection, and his *Collected Papers* appeared nearly two decades ago.

But it is fair to say that his work received renewed attention and acclaim only after the recognition, in the eighties, that he had derived and used the concept of geometric phases in his studies of the interference of polarized light.

His treatment referred to a two-state system and was therefore less general than that which emerged decades later in the context of quantum mechanical phases. However, it was also more general in that any form of evolution, including discrete and non-cyclic, could be considered.

This realization triggered off renewed experimental and theoretical activity and 'Pancharatnam

phase' has now become a familiar term, at least to those in the subfield.

Sixty years have now passed since Pancharatnam was born and twenty-five since he died. It seemed as good a time as any to put together, for a wider audience, material on the man, his work, and later developments in fields related to those which he studied with such distinction. The response to *Current Science's* invitation to contribute articles for this issue was enthusiastic and heartening both from those who knew Pancharatnam and those whose own work was touched by his. The contributions range from personal reminiscences, via appreciations of his work, to mini-reviews of hot topics in contemporary physics. A strong common thread of coherence and phases runs through the different areas discussed, which include both the very classical topics that he worked on in Bangalore and Mysore and the Oxford work with its more modern thrust. We publish at the end a book review of his *Collected Papers*. All in all, one hopes that the appearance of this issue will draw wider attention to Pancharatnam's extraordinary career and contributions, increase awareness of current developments, and above all, act as an inspiration to the young.