

PREFACE

Ten years ago in August 1977 Malcom Longair and Jan Einasto organized IAU Symposium n^o 79 on exactly the same exciting and most important topic i.e. the Large Scale Structure of the Universe. Many of us have the recollection of an outstanding meeting which fulfilled two goals (i) establish most of the foundation of a fast growing field (ii) set up a confrontation between the excellent observational and theoretical work performed in eastern and western countries.

A decade after such a meeting Alex Szalay and I have felt the need to reassemble the cosmologists working actively on problems dealing with the Universe as a whole. Indeed a lot of progress has been achieved in the building of large surveys in the discovery of voids, sponges and filaments in the galaxy cluster distribution, in refined numerical simulations, in experimental and theoretical particle physics (outcome of new particles (cold particles) and unification (GUT, supersymmetry) schemes), in research of quantum gravity and inflation scenarios etc...

A new confrontation between all the specialists working all throughout the world on such questions appeared to us to be most timely. This is why the location of Balatonfüred in Hungary to be accessible to anyone as Tallin in 1977 has been chosen.

In this preface I would like first to describe how the book is organised. In the most important part of the book the reader will find the invited and contributed papers which have been presented orally during the conference including accounts of some of the discussion sessions and the panel discussion. Many posters have been displayed and discussed during this meeting. Their summary constitutes a long appendix which precedes the indexes. For the edition of that book I am most indebted to the authors who have been kind enough to provide me with their contribution in due time. Special thanks are due to the discussion leaders and the chairmen of the scientific sessions, to Y. Zeldovich† and P.J.E. Peebles who accepted the task to open and close the conference and E.E. Salpeter who chaired the panel discussion and edited the report of it. My secretary Ms Marie-Christine Pelletan has been most instrumental in helping me to achieve that task.

Moreover Jo Silk offered me again not only very wise advices but also his hospitality to complete the edition of that book.

I would like also to express my deep appreciation and recognition to the many organizations and individuals who made such an important symposium possible. Let me thank in particular the International Astronomical Union and especially its General Secretary Dr Jean-Pierre Swings such as the presidents of commission "Cosmology" (Dr Giancarlo Setti), "Galaxies" (Dr Vera Rubin) and "Radio Astronomy" (Dr Ken Kellermann) for their continuous support. This meeting has also been made possible thanks for to the Hungarian Academy of Sciences, the Eötvös University of Budapest and the Centre National de la Recherche Scientifique.

I am of course most indebted to my two coorganizers George Marx and Alex Szalay who both worked so much to set up this meeting in such a pleasant resort and who collaborate with me in attracting such a widely distinguished audience. Our secretaries Marie-Christine Pelletan and Zsuzsanna Szabo such as the Local Organizing Committee and the graduate students of the Eötvös University of Budapest have carried out a great deal of work and initiative. They all deserve our gratitude. I shall not forget the tremendous help provided by the Scientific Organizing Committee in the always difficult choices concerning the program and the format of this event. I am much indebted to all speakers, participants and contributors who played the key role in the success of this symposium. I hope that this proceedings book will reflect the unique atmosphere and spirit of this meeting.

My most important but also very sad duty is to dedicate this meeting to the memory of our friend and colleague Marc A. Aaronson who tragically died at the age of 36 on 30 April 1987 at the 4m Mayall telescope of Kitt Peak. Many participants are more qualified than I to speak about Marc, especially Jeremy Mould, Mike Turner, John Huchra, Brent Tully and many others. The french astronomical community is especially sad since Marc should have spent three months with us in Paris and Marseille after this meeting.

Marc Aaronson was born in 1950 at Los Angeles. He did his undergraduate studies at Caltech (he obtained his bachelor degree in 1972 ; then he took his PhD in Harvard in 1977 with a thesis based on Infrared Observations of Galaxies. He then joined the Steward Observatory and the University of Arizona in Tucson where he was currently an associate professor of Astronomy at the Astronomy Department of that University and an associate astronomer of the Steward Observatory.

Every astrophysicist knows he already achieved many substantial contributions on the topics covered by this symposium. As Jeremy Mould will report on his behalf, Marc used the velocity dispersion of carbon stars in dwarf galaxies to show that even the smallest galaxies are surrounded by dark massive haloes. Besides this most recent discovery which is commented at length in this conference

and therefore in this book he was indeed a most respected specialist in infrared astronomy. From his many observations in that wavelength range, he has been able to deduce most precise indicators of galaxies. In a large collaboration including many of his friends present in this room he outlined the deceleration of the Hubble flow due to the Virgo Cluster. Moreover with Jeremy Mould he has contributed much to the observation and the study of the evolution of carbon stars constituting an intermediate age stellar population.

His legacy is 75 papers written during a career 15 years long. For those many and most important contributions he was awarded the Bart J. Bok prize of Harvard in 1983 and the Newton Lacy Pierce prize of the American Astronomical Society in 1984.

Let me dedicate this symposium and this book to his memory.

After the meeting other very sad events occurred with the tragic death on August 25, 1987 of our colleague Victor Shvartzman from Stavropolskij Kraj who participated so actively to this meeting. Later on, we all learnt that Antoinette de Vaucouleurs from University of Texas passed away in September 1988 after a long and painful illness. Finally during the edition of that book we learnt that Professor Yacov B. Zeldovich died on 12/2/87. A special biographical note on this most reputed scientist, colleague and friend who was one of the founders of Modern Cosmology follows his opening remarks. Let me request the readers of this book to remember these four colleagues who contributed so actively to cosmology.

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