



ZIPORA ALTERMAN

Memorial Biography

Four years ago on April 24, 1974, geophysics lost one of its outstanding contributors—Professor Zipora Alterman, who passed away in the midst of her career. This volume is a tribute by a few of her colleagues and friends in recognition of the distinguished and significant contribution she made to the field of applied mathematics and computational geophysics.

Dr. Alterman was born in Berlin, Germany, in 1925, and she immigrated to Israel in 1939. Her undergraduate and graduate studies were at the Hebrew University in Jerusalem and she received her M.Sc. in 1949 and her Ph.D. in 1954, both in applied mathematics. During her studies the Arab-Israeli War of 1948-1949 broke out and Professor Alterman joined the Israeli army, where she served in the scientific corps until 1954.

Professor Alterman was an applied mathematician who devoted herself to ap-

mathematics, there is applied mathematics, there is mis applied mathematics, and there is Ms applied mathematics,"

In 1955 she joined the Weizmann Institute, Israel, shortly after the group headed by Professor C. L. Pekeris started working on the problem of the free oscillations of the earth. She was one of the key contributors who helped solve for the first time the formidable computational tasks which led to the precise prediction of the theoretical eigenperiods associated with spheroidal and torsional modes for realistic earth models.

A dramatic moment concerning these calculations occurred at the Helsinki meeting of the International Association of Seismology and Physics of the Earth's Interior, which was held in August 1960. In this meeting, measurements from terrestrial eigen-spectra generated by the May 1960 Chilean earthquake were presented and these observed periods agreed closely with the theoretical calculations of the Israeli group. Dr. Alterman's main contributions in this field can be found in Alterman *et al.* [6] and Pekeris *et al.* [14], and are reviewed by Alterman *et al.* [69].

In 1967 Professor Alterman established the Department of Environmental Sciences (later the Department of Geophysics and Planetary Sciences) at Tel Aviv University and was head of this department almost until her death. She devoted a great amount of energy and enthusiasm to the development of this department and took a remarkable personal care of all the issues concerning staff members and students. She was most generous in collaborative work with colleagues and students alike. Nevertheless, although she was much occupied with these tasks, she did not slow down her own research activities at all.

For the latter phase of her career she pioneered the use of finite difference tech-

niques for obtaining numerical solutions to certain geophysical problems. These include the papers by Alterman and Karal [37], Alterman and Aboudi [42, 46], and Alterman *et al.* [55], among others. She demonstrated the applicability of such techniques in creating synthetic seismograms for complicated models where no formal analytical solutions are known, such as the works by Alterman and Rotenberg [43], Alterman and Loewenthal [62], and Shmuely and Alterman [68]. In any overall assessment it must be mentioned that, above all, she mastered the art of harnessing modern computers to the complex problems of seismologists and geophysicists. The list of her publications that follows show a rare ability for fruitful joint authorship with literally scores of colleagues extending over a period of twenty years.

Apart from her scientific career, she was a devoted wife to her husband, Israel, and to their son, Ilan. It is characteristic of her endless energy that she found the time for cultivating her hobby of flying various types of aircraft as a certified pilot and aviation instructor.

She passed away on April 24, 1974, after a serious illness while on a sabbatical leave to Australia where she was visiting Professor K. E. Bullen at the University of Sydney. She is much missed by many colleagues and friends around the world.

LIST OF PUBLICATIONS BY Z. ALTERMAN

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