50 years of *JQSRT*: Milestone papers

1. Introduction

The *Journal of Quantitative Spectroscopy & Radiative Transfer (JQSRT)* was founded under the leadership of professor Stanford S. (Sol) Penner, and its first issue appeared in 1961 with the foreword by the founding editor as shown in Fig. 1. This makes 31 December 2010 the last day of the 50th calendar year of publishing the journal. It is a delight for us to be able to introduce this celebratory issue of *JQSRT*, a journal which we have been proudly involved in for decades as authors, reviewers, associate editors, and, presently, editors-in-chief.

As part of our celebrations of 50 years of the publication of *JQSRT*, the current board of editors-in-chief and associate editors voted to select a subset of papers from the past which have been especially instrumental in defining the special place of this journal in the world of science. This task was not an easy one since the number of papers published in *JQSRT* now exceeds 7000. As a result of this vote, we have identified the 42 most significant papers in the broadly defined categories of spectroscopy [1–12], radiative transfer [13–22], electromagnetic scattering [23–32], and remote sensing [33–42]. To form this milestone *JQSRT* issue, we have narrowed this selection down by taking into account the number of points awarded to each paper as a result of the vote and by requiring that no more than one milestone paper have the same first author. The resulting selection of 17 milestone *JQSRT* papers is listed below. The reader will notice that, as an exception to the above rule, there are three groups of papers each having the same first author. However, only one paper from each group is reprinted in this special issue. Each number in square brackets in the following list represents the number of times a paper has been cited according to the ISI Web of Knowledge database at the time of submission of this Introduction (29 January 2010).

1.1. Spectroscopy


FOREWORD

On the Reasons for Publishing JQSRT

A SYMPOSIUM on Quantitative Spectroscopy and Selected Military Applications was held at the California Institute of Technology (in March, 1960). The success of this meeting indicated to many of the participants that a proper publication outlet did not exist for papers on quantitative spectroscopy and radiative transfer originating from workers in widely different scientific disciplines. While there is an abundance of excellent specialized journals on fundamental spectroscopy and on selected fields of applications of spectroscopy, it is nevertheless a major research problem to uncover the many separate publications in which closely related subjects have been treated from somewhat different points of view.

It is hoped that JQSRT will serve as a unified publication outlet for a significant number of papers on quantitative spectroscopy and radiative transfer. Papers dealing with the following subjects are preferred: Theoretical and experimental determination of f-numbers of absolute intensities for atomic and/or molecular systems; theoretical and experimental studies on spectral line shapes and widths; emissivities of heated gases, liquids, and solids; flame temperatures and flame emissivities; emission of radiation from heated gases, liquids and solids and long-range detection of radiating sources; quantitative spectroscopic techniques for environmental studies; particularly those related to rocket flights and satellite exploration; shock-tube studies in which the emphasis is on quantitative spectroscopy; radiant energy emission from plasmas; etc.

S. S. PENNER

Fig. 1. Foreword to the first issue of JQSRT.

1.2. Radiative transfer


1.3. Scattering


XV. Kahnert FM. Numerical methods in electromagnetic scattering theory. JQSRT 2003;79–80:775–824 [100].

1.4. Remote sensing


Although this collection of milestone papers is the result of a collective vote, we cannot claim that it provides the most objective historical representation of JQSRT. However, we have done our best with the help of the current board of associate editors and hope that the reader will appreciate our objective and the outcome of our good-faith effort.

Each milestone paper (or group of papers) is preceded by a short introduction which puts the paper (or group of papers) in the proper historical context and provides an update in the form of a brief statement of the current state-of-the-art of the corresponding research field. In most cases these introductions were written by the original authors of the respective papers. In a few cases they were contributed by the relevant editors-in-chief.
An effort has been made to correct the milestone papers for known typos.

The collection of milestone JQSRT papers is preceded by a short foreword kindly provided by professor S.S. Penner. We thank the founding editor S.S. Penner and the editor-in-chief Emeritus Prasad Varanasi as well as the former and present associate editors of JQSRT for past and present contributions to the success of the journal. But first and foremost, we thank all authors, reviewers, and readers of JQSRT for their 50 years of continual and enthusiastic support. Without their hard work and contributions there would be no JQSRT.

References


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