

Anton Zeilinger

Foreword

There is hardly a phenomenon in science which has broader implications than the effect named after Christian Doppler, the son of a Salzburg stonemason. The series of conferences in commemoration of his 200th birthday in 2003, whose collection is contained in this volume, gives an overview of both the life of Christian Doppler and of the implications and applications of his effect across many fields of modern science. The locations of these commemorative conferences, Salzburg, Prague, Vienna and Venice, cover the whole lifespan of Christian Doppler, from his birth and early years in Salzburg via his productive academic years in Prague and Vienna to his untimely death in Venice.

It is very hard to believe that an effect, which everyone today can obviously experience when listening to a car or a train passing by, met with such academic opposition at the time. This shows how scrutiny by peers, which is one of the essential elements of the academic research system in providing necessary checks and balances, is able to overshoot even in cases not understandable to us today.

The Doppler effect itself, that is, the change of frequency and/or wavelength of a wave as a consequence of the motion of the emitter and/or the receiver, is so basic and essential that it has found countless applications of which this collection gives a broad and very well balanced overview, even in view of the importance of the fact that any such overview can, of necessity, give only a glimpse of the breadth of applications. These applications run from the very small to the very large, from inanimate matter to medicine, from fundamental questions to technical applications. Just to name a few, they include the cooling of atoms to very low temperatures, measurement of the expansion of the Universe, study of the motion of the living heart, investigations of the dynamics of individual atoms and molecules, the discovery of extrasolar planets and many more. It may therefore be more than apt to call the Doppler Effect not only the effect of the century, in that case the 19th century, but even the effect of the millennium.

Vienna, in July 2007

An Imprint of Living Edition Publishers,
Living Edition, STARNA Ges.m.b.H.,
Oberneuberg 78,
8225 PÖLLAUBERG, AUSTRIA

Living Edition is a registered trademark in Austria (Austrian Patent Office)

Translations by: Sally Wallner (texts of Hoffmann and Schwippel),
Bernhard Öhlinger (text of Peter M. Schuster / "Review of the Activities in the Jubilee Year 2003")
Proofreading by: Malcolm Cooper (UK)

Designed, typeset and printed in Vienna, Austria, by arrangement with: technographic.at

Published in Austria by Living Edition, STARNA Ges.m.b.H., Pöllauberg

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First published by Living Edition Publishers 2007

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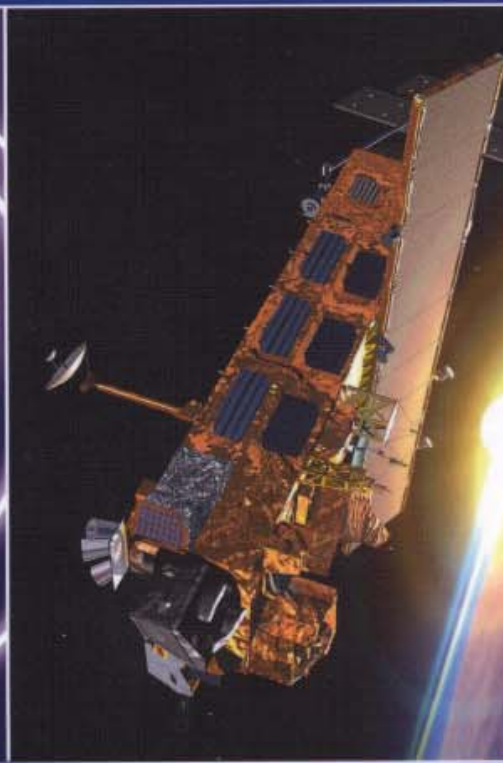
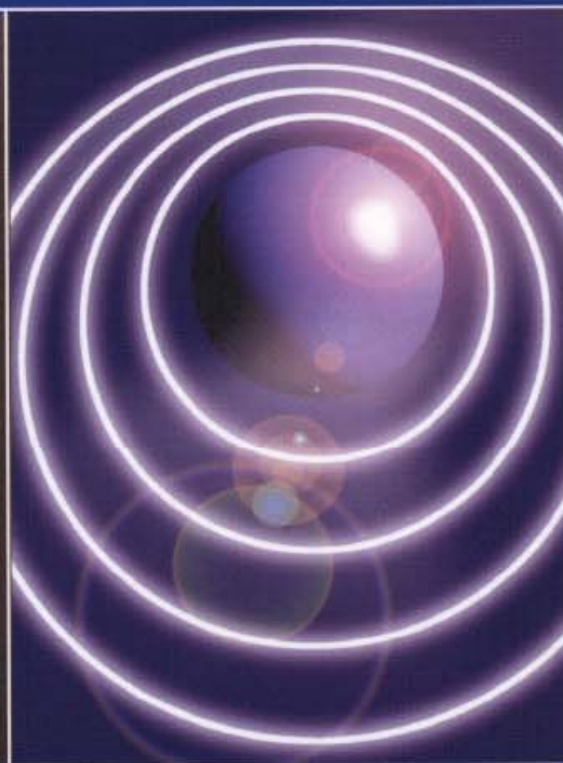
ISBN 978-3-901585-09-8

This book is printed on acid-free paper

Proceedings of the Commemorative Symposia
in 2003 — Salzburg • Prague • Vienna • Venice

Christian Doppler

Life and Work • Principle and Applications



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