

AperTO - Archivio Istituzionale Open Access dell'Università di Torino

QCd and Heavy Quarks. In memoriam Nikolai Uraltsev

This is a pre print version of the following article:

Original Citation:

Availability:

This version is available <http://hdl.handle.net/2318/1549193> since 2016-01-21T20:53:41Z

Publisher:

World Scientific

Terms of use:

Open Access

Anyone can freely access the full text of works made available as "Open Access". Works made available under a Creative Commons license can be used according to the terms and conditions of said license. Use of all other works requires consent of the right holder (author or publisher) if not exempted from copyright protection by the applicable law.

(Article begins on next page)

Chapter 1

Preface from the Editors

This book is dedicated to our colleague and friend Prof. Dr. Nikolai “Kolya” Uraltsev who passed away early and unexpectedly on Feb. 25, 2013. The whole community of phenomenological particle physics consider this a great loss, since he was not only an outstanding scientist, but also a wonderful person.

The scientific community knew Kolya as a physicist with an enormous intuition; in particular he was famous for his understanding of QCD and its non-perturbative properties. For him a novel idea was wonderful, but only the first step; then, when necessary, he went into hard calculations, with all their subtleties. He had a very broad overview over phenomenological particle physics, ranging from electroweak and Higgs physics to flavor and CP violation, as well as QCD, on which he focussed over the last two decades of his life.

Kolya is one of the fathers of the heavy quark expansion. He approached this from the point of view of QCD by noticing that there is a small parameter, namely the ratio of the confinement scale over the heavy quark mass, which one could use for an expansion of the QCD matrix elements. He never appreciated (and in fact he never needed) the tool of effective theories, which is widely used in the description of heavy hadrons; he always extracted the relevant physics from QCD, usually without resorting to heavy quark effective theory.

Discussions with Kolya at conferences and seminars were legendary, and many colleagues from the scientific community may well remember this. Thanks to his deep insight into QCD he almost always had a point, and of course he insisted to get things right at the end. Many colleagues in particular from the West had a hard time to get acquainted with his style; he was never unfriendly nor insulting, but always straightforward. Once this was understood, working with Kolya was effective and very enjoyable.

To his friends he was known as a wonderful person, who was in many respects unconventional. Although he was a theorist, he was a very practical person: he could fix all kinds of machinery, including electronics and even cars, although his

solutions were sometimes unorthodox. As an example, the German authorities eventually removed Kolya's 25-year old Toyota car from the streets; it still moved, but some of Kolya's 'fixes' were somewhat debatable. Nevertheless, he was a reliable friend and companion to many of us also outside physics.

Kolya was born in what was then called Leningrad in 1957 and got his PhD at the Leningrad Nuclear Physics Institute in 1983 under the supervision of Alexei Anselm. Shortly thereafter he obtained a permanent position at the same Institute, which he retained till his death. At first Kolya was very shy, but he slowly changed. After 1986 he started visiting more and more frequently various western universities, spending long periods at Notre Dame, Minnesota, CERN, Milan. During his final years he was scientific staff in the theoretical particle physics group in Siegen, where he passed away on Feb 25th, which was the Ash Wednesday of 2013. He left his wife Lilia and his son Gennady. Lilia was not only a wonderful wife, but also has standing in science by herself; in the summer she frequently went on archaeological excavations in the Kola Peninsula; Kolya followed her to help the expedition getting food by fishing. Gennady is closer to mathematics than physics, but he has an excellent future ahead of him there.

Kolya's departure was a great shock for us as his close friends, and we decided to gather in a volume dedicated to his memory contributions from some of his colleagues working in the same field. The book is on one side a memorial, on the other it is also a document representing Kolya's particular view on QCD and its anatomy, which in some respect has been unconventional. In this regard the book may also be useful for students and colleagues who did not know Kolya personally.

Ikaros Bigi, Notre Dame, USA
Paolo Gambino, Torino, Italy
Thomas Mannel, Siegen, Germany
January 2015