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PREFACE

The "First Non-Orthodox School on Nonlinearity and Geometry — Luigi Bianchi Days" took place in Warsaw, Poland, September 21–28, 1995. It was organized by the Institute of Theoretical Physics of Warsaw University.

The Local Organizing Committee, Student Nonlinear Physics Research Group at Physics Department of Warsaw University and Antoni Sym (Institute of Theoretical Physics of Warsaw University), wishes to thank many individuals and organizations for their help and support. Without our Sponsors:

- Stefan Banach International Mathematical Center, Warsaw,
- Polish-German Cooperation Foundation (Stiftung für Deutsch-Polnische Zusammenarbeit),
- Polish Ministry of Education,
- Institute of Physics of Polish Academy of Sciences,
- Polish Physical Society,
- Digital Equipment Poland,

this School would have been impossible.

The original conception of the "Non-Orthodox School" was to bring together both young newcomers into the field (students, postgraduate students, etc.) and professionals in the field while the highly topical field of the meeting was **classical differential-geometric inspirations to the modern soliton theory — historical achievements and contemporary developments**. The School attracted 31 foreign participants from Australia, China, Germany, Italy, Russia, England, Ukraine and USA. The program of the School (see page 383) consisted of two parts:

- Days for Newcomers (September, 21–26, 1995),
- Days for Professionals (September, 27–28, 1995).

The field is a rapidly developing one and we hope that this School will serve as the beginning of a series of more or less regular ventures.

A spiritual patron of the School was Luigi Bianchi (1856 - 1928) — a great Italian geometer and precursor of the modern soliton theory. Indeed, today we can see clearly that the modern and so important "theory of solitons" (theory of integrable nonlinearities) has their roots in the remote past (see contributions by M. Heyerhoff and by R. Prus and A. Sym in this context).

We wish to thank the Editors (Daniel Wójcik and Jan Cieśliński) for undertaking (not easy) editorial work.

Finally, we wish to acknowledge the PWN publishing house for so nice cooperation.

Antoni Sym
Warsaw, January 1998

Luigi Bianchi

LUIGI BIANCHI

a short biography

L. Bianchi was born on 18 January 1856 in Parma (Italy). Apart from short research visits to Munich[1] (1879–1880) and Göttingen (1880–1881) he lived all his life as a researcher and teacher in Pisa. His reluctance to accept numerous invitations to pay scientific visits can be partially explained by the following quotation from "Commemorazione del Socio Luigi Bianchi" (Rendiconti della R. Accademia Naz. dei Lincei, appendix to vol. X (6), 1929) by G. Fubini:

> "Bianchi, modest and distant from any ambition never competed for any mark of honor or for any public standing; (...)"

Bianchi graduated with the highest distinction from Pisa University on 30 November 1877. On 13 January 1879 he presented and defended his doctoral dissertation (called in Italian "la tesi di Abilitazione").

This classical work contained some early ideas which later on have been developed by A. V. Bäcklund and L. Bianchi himself and which today can be identified as perfectly solitonic concepts (Bäcklund transformations).

After his return from Germany to Italy in 1881 Bianchi was appointed to a professorship at the famous Scuola Normale Superiore of Pisa (founded by Napoleon on 29 January 1813). On 3 April 1886 he became a professor of the Royal University of Pisa holding a chair of differential, projective and finally analytical geometry. In 1926 the Institute of Mathematics of Pisa University has been established and Bianchi was appointed as its director.

Bianchi's prodigious mathematical research activity from 1877 till his death in 1928 was dominated by differential geometry related considerations (classical theory of surfaces, Riemannian geometry and theory of Lie groups). He made also important contributions to the number theory. The complete list of his various contributions (papers, treatises, others) contains 209 works. In particular he wrote a number of important text — books on diverse subjects (differential geometry, complex functions, Lie groups, algebraic numbers, etc.). According to H. Hilton (J. London Math. Soc. v. 4 (1), 1929) these Bianchi's treatises "show him to be not only a scientific genius but also a master of clear and attractive style".

Luigi Bianchi died on 6 June 1928 in Pisa. He is buried in the celebrated place called "Camposanto di Pisa" which is one of the famous buildings surrounding Pisean "Square of Miracles". His grave is distinguished by its modesty.

Antoni Sym

[1] It was Munich not Monaco as it is erroneously stated in some Bianchi biographies (in Italian "Monaco" means both "Monaco" and "Munich").