BERNOULLI EULER GESELLSCHAFT

mitglied der scnat akademie der naturwissenschaften

EULER–BERNOULLI

GESTERN-HEUTE-MORGEN

JUBILÄUMSTAGUNG UND INTERNATIONALES SYMPOSIUM
«EIN MEILENSTEIN IN DEN EDITIONEN EULER-BERNOULLI»
FREITAG/SAMSTAG 28./29. OKTOBER 2022

PROGRAMM

Freitag, 28. Oktober 2022
Aula im Kollegiengebäude der Universität, Petersplatz 1

17:00 Uhr: Einführung und Grussworte
Prof. Dr. Andrea Schenker-Wicki (Rektorin der Universität Basel), Prof. Dr. Marcel Tanner (Präsident der Akademien der Wissenschaften Schweiz) und Prof. Dr. Matthias Egger (Präsident des Forschungsrates des Schweizerischen Nationalfonds)

17:30 Uhr: Festvortrag von Prof. Dr. Günter Ziegler (Präsident der Freien Universität Berlin)
«Mathematik, ein weites Feld. Euler als Universalist»

18:30 Uhr: Apéro mit Vernissage des Bandes II27 der Opera Omnia und Vorstellung des Euler-Comic

Samstag, 29. Oktober 2022
Grosser Hörsaal der alten Universität, Rheinsprung 9

09:00 Uhr: Türöffnung, Kaffee und Tee

10:00 Uhr: Prof. Dr. Hans-Christoph Im Hof (Basel): *«Die Edition der Werke Leonhard Eulers»*
Prof. Dr. Andreas Kleinert (Halle): *«Von den Petersburger Manuskripten zur Series IVA der Opera omnia. Zur Geschichte der Euler-Briefedition»*

11:30 Uhr: PD Dr. Rita Gautschy (Basel) und Prof. Dr. Gerd Grasshoff (Berlin): *«Opera-Bernoulli-Euler.digital», mit Demonstrationen* (eigenes Notebook mitbringen!)

Mittagspause

Symposium zum wissenschaftlichen Werk von Leonhard Euler[1]

14:30 Uhr: Prof. Dr. Umberto Bottazzini (Università degli Studi di Milano): *«Elastica, Lemnicate and Euler's Addition Theorem for Elliptic Integrals»*

15:30 Uhr: Prof. Dr. Jesper Lützen (University of Copenhagen): *«Euler's general Analysis versus Applications»*

16:30 Uhr: Kaffeepause

17:00 Uhr: Prof. Dr. Helmut Pulte (Ruhr-Universität Bochum): *«Euler's Philosophy of Space and Time. With a Note on its Reception by Kant»*

Organisationskomitee
Hanspeter Kraft und Fritz Nagel
Bernoulli-Euler-Gesellschaft

[1] Die Abstracts sind auf der Rückseite.

ABSTRACTS DER SYMPOSIUMS-VORTRÄGE

Umberto Bottazzini: ***Elastica, Lemniscate and Euler's Addition Theorem for Elliptic Integrals***

In 1738 working on the vibrations of an elastic band Euler noticed "a singular property of the rectangular elastica" that turns out to be a special case of his addition theorem for elliptic integrals. As I will discuss in the lecture, the Italian mathematician Count Fagnano discovered that the lemniscatic arc is algebraically divisible into $2 \cdot 2^m$, $3 \cdot 2^m$, or $5 \cdot 2^m$ equal parts. Prompted by Fagnano's results collected in the Produzioni matematiche (1750), in a series of papers Euler stated the addition theorem for all three distinct kinds of elliptic integrals according to the classification that was later introduced by Legendre.

Jesper Lützen: ***Euler's general Analysis versus Applications***

Euler is famous for his ingenious and bold manipulations with analytic formulas based on what Cauchy later called the generality of algebra. He is also famous for his application of analysis to mechanics. However in his discussion with d'Alembert and Daniel Bernoulli about the vibrating string the idea of a general analysis and the insistence on the applicability of the analytic solution to all physical situations clashed. Where d'Alembert chose to stick with the old ideas of analysis, Euler opted for a change of the basic concepts, in particular the concept of a function, that would allow a general solution of the mechanical problem. I shall analyze the fundamental change of analysis Euler envisaged but emphasize that he never developed it very far. Indeed, as revealed by his reply to Daniel Bernoulli, Euler continued to argue in terms of the old analysis, even in cases where such arguments make little sense in the realm of his new functions. At the end of the talk I shall show how Fourier's treatment of trigonometric series partly clarified the confusion in Euler's answer to Daniel Bernoulli.

Helmut Pulte: ***Euler's Philosophy of Space and Time. With a Note on its Reception by Kant***

The monumental mathematical work of Leonhard Euler has often obscured the view of Euler's philosophical achievements. However, from his early Mechanica (1736) to late works such as the Lettres à une Princesse d'Allemagne (1768-72), he repeatedly reflected the epistemological and methodological foundations of science and mathematics. His discussion of the concepts of space and time, which culminates in the paper Réflexions sur l'espace et le temps (1748), has also received comparatively little attention in philosophy and history of science.

The lecture examines, on the one hand, Euler's theory of space and time against the background of the older Newtonian and Leibnizian theories of space and time. On the other hand, it explores what role Euler's approach may have played in the formation of Kant's conception of space and time as forms of pure intuition. Particular attention is paid to Euler's change in the justification of mathematical physics as part of a more general process of 'modernisation' of the concept of science: As already Ernst Cassirer argued, with Euler rational mechanics gained an autonomy from traditional metaphysical forms of justification – a process which paved the way for an understanding of space and time as preconditions of gaining empirical knowledge of the world.