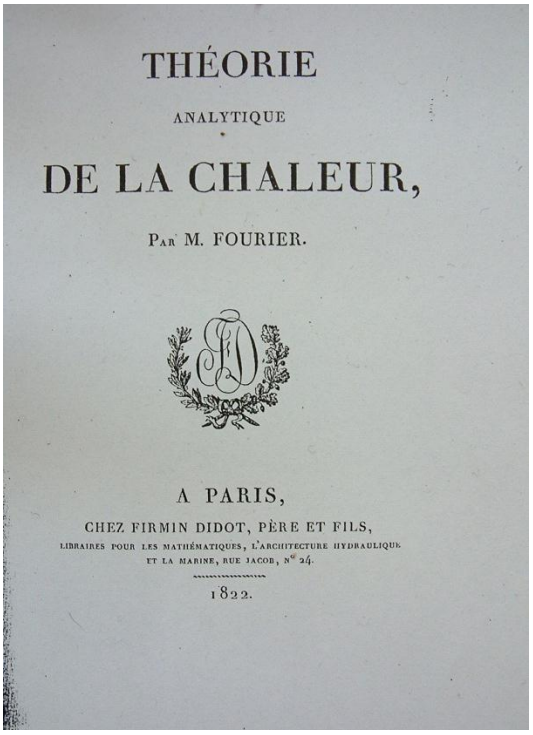
INTERNATIONAL SUBSCRIPTION

JOSEPH FOURIER



THÉORIE

ANALYTIQUE

DE LA CHALEUR,

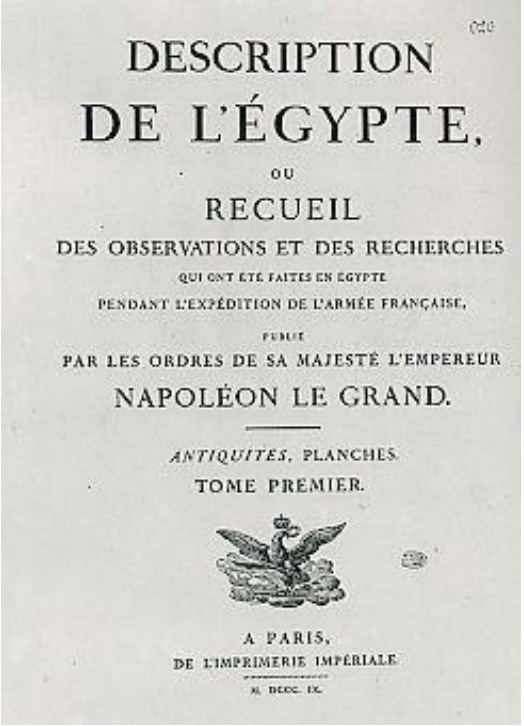
PAR M. FOURIER.

A PARIS,

CHEZ FIRMIN DIDOT, PÈRE ET FILS,

LIBRAIRES POUR LES MATHÉMATIQUES, L'ARCHITECTURE HYDRAULIQUE ET LA MARINE, RUE JACOB, N° 24.

1822.



DESCRIPTION

DE L'ÉGYPTE,

OU

RECUEIL

DES OBSERVATIONS ET DES RECHERCHES

QUI ONT ÉTÉ FAITES EN ÉGYPTE

PENDANT L'EXPÉDITION DE L'ARMÉE FRANÇAISE,

PUBLIÉ

PAR LES ORDRES DE SA MAJESTÉ L'EMPEREUR

NAPOLÉON LE GRAND.

ANTIQUITÉS, PLANCHES.

TOME PREMIER.

A PARIS,

DE L'IMPRIMERIE IMPÉRIALE.

M. DCCC. IX.

$$\int_{-\infty}^{+\infty} f(x)e^{-2\pi i x \xi}\,dx$$

Why Joseph FOURIER?

Nowadays recognized as one of the greatest names in Science, member of the French Academy of Sciences, of the « Academie Française », and of the British Royal Society, Fourier is not only a scientist, but also a model we can be proud of! Moreover, he has left a universal and omnipresent scientific legacy both in fundamental and applied science.

Fourier was born in Auxerre in a modest family. Orphan at the age of eight, he was raised by an organist. Then he studied at Auxerre high-school where he returned to become a teacher. He took a prominent active part in the French Revolution, notably among the popular society of Auxerre.

In 1795, he was admitted to the Ecole Normale Supérieure in Paris and later taught at the Ecole Polytechnique. As a prominent scientist, Fourier accompanied Napoléon Bonaparte in his Egyptian expedition in 1798 and was appointed Prefect of the department of Isère from 1802 to 1815. During this period, he published his « theory of heat ». The department of Isère honored him by giving his name to a University in Grenoble: Joseph Fourier University. He was elected to the French Academy of Sciences in1816 for his work on heat. He became the perpetual Secretary of the Academy in 1822 and worked on the theory of statistics. He died in Paris on May 16th, 1830. He was buried at the Père Lachaise Cemetery. His grave lies close to the grave of his friend François Champollion.

One of the greatest names in Science

« Fourier's Theory of Heat is one of the first examples of the application of mathematical analysis to physics (…). The results he obtained are interesting, but what is even more interesting is the method he used to obtain them, a method that will always serve as a model to those who will tackle some branch of mathematical physics. » **Henri Poincaré**

« For one of the first time in the history of physics, in this differential equation can be found several parameters of different nature, including temperature, time, length, specific heat, « density », heat conductivity, … The study of the general case led him to introduce the notion of transform (the Fourier Transform) that was named after him. » **J. B Robert**

« Fourier's theorem is not only one of the most beautiful result of modern analysis, but it is said to furnish an indispensable instrument in the treatment of nearly every recondite question in modern physics…Fourier is a mathematical poem. » **Lord Kelvin**

Today: modernity and universality of Fourier

Extracts from *Le Retour de Fourier* by J.P. Kahane (Académie des Sciences)

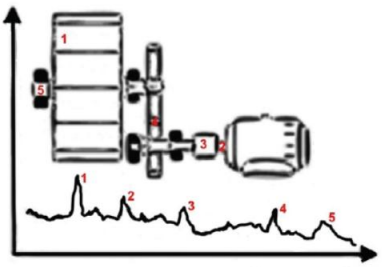
« From natural phenomena (…), to bring out general methods, and to conclude by giving methods of numerical calculus (...) »

« However, the comeback of Fourier was imminent (...) within the development of pure mathematics (...) Fourier was the first to correctly and completely understand the nature of trigonometric series. » « The true impact of Fourier's formulae appears more clearly today: they constitute a program. The meaning attributed to functions, series and integrals may vary (…). It is the task of mathematicians to introduce the concepts and the tools that validate the formulae. »

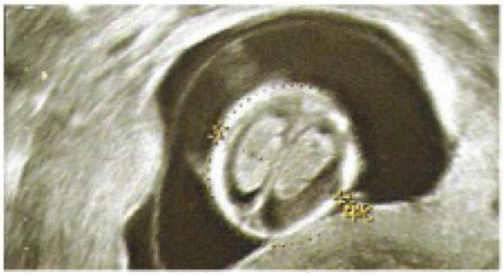
« The title (…) of the book written by Dhombres and Robert is *Fourier - Créateur de la physique mathématique.* The notion of flux (…) is so often used that its origin can be almost forgotten, the flux of heat. The equation of heat, with the equation of vibrating ropes and the equation of potential, are the trinity of the partial derivatives equations, fundamental in physics. The theory of the Brownian movement and the study of all the diffusion phenomena have emphasized their interest. Fourier series and Fourier integrals are fundamental in the signal theory and in its variations (...) ».

Applications of Fourier's mathematical tools

Tuner

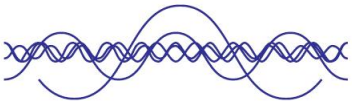


Industrial Maintenance



Echography

Telecommunications



MRI

And so much other like: molecular spectroscopy, diffraction crystallography, exoplanet detection, etc.

The human dimension

Fourier served the public good, not only in Auxerre where he joined the revolutionary cause, but also as Prefect in Isere, where his actions had profound impact on the department, even nowadays.

He acted as a righteous and courageous man in the department of Yonne where he defended the Revolution even if it meant disobeying for saving lives at his own peril.

His science and personality must be used to promote and develop science, technical innovation and industry.

The subscription

After previous public events, in a framework of Science promotion, dedicated to Joseph Fourier (his name remains largely unknown to the general public), it became obvious that Joseph Fourier and his legacy needed to be valorised. Furthmore the bronze statue erected in Auxerre in 1849 was destroyed during World War II, and so there is any statue of this illustrious mathematician in France. In light of this, we invite all the people and/or organisations willing to take part in this project to contribute to the realisation and erection of a monument in memory of Joseph Fourier in his home town, Auxerre.

The subscription sponsorship committee is currently under the presidency of **Jean-Pierre Kahane** (member of the French Academy of Sciences) and supported by **Cédric Villani** (the 2010 Fields Medal recipient). Some other support members:

Patrick Flandrin and **Jean-Pierre Demailly**, French Academy of Sciences
Emmanuel Candès, Stanford University, Waterman Award
Mohamed Najim, 2011 TWAS Medal
Stéphane Jaffard, 2007-2010 President of the French Mathematical Society
Laure Blanc-Féraud, Director of GDR 720 ISIS - CNRS
Jean Dhombres, Research director at « Centre Alexandre Koyré d'Histoire des Sciences et Techniques »

More generally, visit http://www.ccstib.fr/-Fourier,046-.html

I donate to contribute to the creation of the statue of Joseph Fourier.

The amount of my donation is:

Last name: First name:

Occupation:

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I authorise the CCSTI of Burgundy to publish my name within the information related to the project.

yes / no (cross out as appropriate)

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Please, make your cheque payable to the CCSTI Bourgogne.

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E-mail: contact@ccstib.org

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According to the category (individual, benefactor, association, institution, sponsor), the donation enables the proportional calculation of the mandate as stated in the table below:

Amount	**Mandate definition basis**
20 € Individual	1
100 € Benefactor	5
150 € Association	5
500 € Institution	10
5000 € Sponsor	50