

Nature and Religion in Southeastern European Space

# NARS

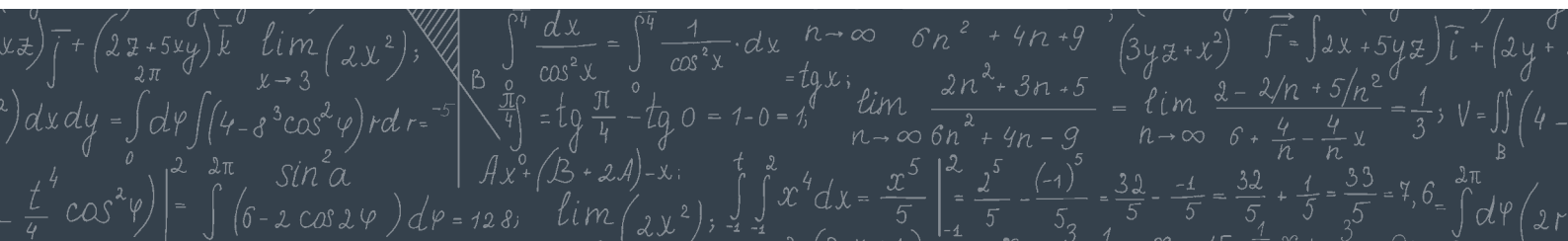
ΕΠΙΧΕΙΡΗΣΙΑΚΟ ΠΡΟΓΡΑΜΜΑ  
**ΕΚΠΑΙΔΕΥΣΗ ΚΑΙ ΔΙΑ ΒΙΟΥ ΜΑΘΗΣΗ**  
 επένδυση στην κοινωνία της γνώσης  
 ΥΠΟΥΡΓΕΙΟ ΕΘΝΙΚΗΣ ΠΑΙΔΕΙΑΣ ΚΑΙ ΘΡΗΣΚΕΥΜΑΤΩΝ  
 ΕΙΔΙΚΗ ΥΠΗΡΕΣΙΑ ΔΙΑΧΕΙΡΙΣΗΣ  
 Με τη συγχρηματοδότηση της Ελλάδας και της Ευρωπαϊκής Ένωσης

**ΕΣΠΑ**  
 2007-2013  
 πρόγραμμα για την ανάπτυξη  
 ΕΥΡΩΠΑΪΚΟ ΚΟΙΝΩΝΙΚΟ ΤΑΜΕΙΟ

ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ  
 ΥΠΟΥΡΓΕΙΟ ΠΑΙΔΕΙΑΣ ΚΑΙ ΘΡΗΣΚΕΥΜΑΤΩΝ  
 ΕΙΔΙΚΗ ΥΠΗΡΕΣΙΑ ΔΙΑΧΕΙΡΙΣΗΣ

ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ  
 ΕΥΡΩΠΑΪΚΟ ΚΟΙΝΩΝΙΚΟ ΤΑΜΕΙΟ

Mapping Science and Eastern Christianity relations in Southeastern Europe and Eastern Mediterranean



$(a_1; m_1) + (a_2; m_2) = (a_1 + a_2; m_1 + m_2)$   
 $f_2(x) = \sin(x) (3; -7) + (2; 9) = (3+2; -7+9) = (5; 2)$   
 $y = \ln \frac{x+1}{x+2}; Ax + (B+2A) = x$   
 $\lim_{x \rightarrow 3} (2x^2) = \lim_{x \rightarrow 3} (5x)$   
 $y = \frac{x^3 - 4}{4x^2} - \frac{1}{6} = -\frac{3}{30} + \frac{5}{30} = \frac{2}{30}$   
 $\frac{5}{30}$   
 $\frac{\pi}{4}$



$\int (2x+1)^{-2} dx = \frac{1}{2} x \frac{(2x+1)}{-1} - \frac{2n^2+3n+5}{6n^2+4n-9} \cdot \frac{3}{30}$   
 $\lim_{n \rightarrow \infty} \frac{6n^2 + 4n + 9}{2n^2 - 3n + 5}$   
 $y = \ln \frac{x+1}{x+2}$   
 $\lim_{x \rightarrow 3} (x^2 - 23x + 8) + (5x^3 + 7x^2 + 12)$   
 $\cos 2A + (A+B) = 2A + A + B = x$   
 $(3 \cdot \text{const} - \text{const} + x^2) = (3 \text{const})' =$



$$\begin{aligned}
 & (z^2 + 3xy) = 2z; \quad \lim_{n \rightarrow \infty} \frac{2n^2 - 3n + 5}{\sigma n^2 + 4n + 9}; \quad \lim_{x \rightarrow 3} (2x^2); \\
 & (3 \cdot \text{const}) + (3 + \text{const}) = y \cdot \text{const}; \quad y = \ln x; \quad \lim_{n \rightarrow \infty} \frac{2n^2 - 3n + 5}{6n^2 + 4n - 9}; \\
 & \ln x + 3x + 2x + 6x \ln x + 5x; \quad y = \ln \frac{x+1}{x+2}; \quad \frac{1}{11-2 \cdot 2}; \quad y^{10} = 6x \ln x + \frac{3x^2}{x} + 2x = (3 \cdot \text{const} - \text{const} + x^2)^2 = (3 \text{const})^2 = \\
 & (2y^2 + 3xz) = 4y; \quad (3yz + x^2); \quad \lim_{n \rightarrow \infty} \frac{2n^2 - 3n + 5}{6n^2 + 4n - 9}; \quad (z^2 + 3xy) = 2z; \quad (2y^2 + 3xz) = 4y
 \end{aligned}$$



$$\begin{aligned}
 & \lim_{x \rightarrow 3} (2x^2); \quad \int_0^{\pi/4} \frac{dx}{\cos^2 x} = \int_0^{\pi/4} \frac{1}{\cos^2 x} \cdot dx = \tan x; \quad \lim_{n \rightarrow \infty} \frac{2n^2 - 3n + 5}{6n^2 + 4n - 9} = \lim_{n \rightarrow \infty} \frac{2 - 2/n + 5/n^2}{6 + 4/n - 4/n} = \frac{1}{3}; \\
 & \int_0^{2\pi} \sin^2 \psi \, d\psi = \int_0^{2\pi} (1 - \cos 2\psi) \, d\psi = 2\pi; \quad \int_0^1 \int_0^1 x^4 \, dx = \frac{x^5}{5} \Big|_0^1 = \frac{1}{5}; \quad \int_0^1 \int_0^1 (4 - 2 \cos 2\psi) \, d\psi = 12.8; \quad \lim_{n \rightarrow \infty} \frac{2n^2 - 3n + 5}{6n^2 + 4n - 9} = \frac{32}{5} - \frac{1}{5} = \frac{32}{5} + \frac{1}{5} = \frac{33}{5} = 7.6;
 \end{aligned}$$



$(a_1; m_1) + (a_2; m_2) = (a_1 + a_2; m_1 + m_2)$   
 $f_2(x) = \sin(x) (3; 7) + (2; 9) = (3+2; -7+9) = (5; 2)$   
 $y = \ln \frac{x+1}{x+2}; Ax + (B+2A) = x$   
 $\lim_{x \rightarrow 3} \frac{x^3 - 4}{4x^2} = \frac{27-4}{36} = \frac{23}{36}$   
 $\lim_{x \rightarrow 3} (2x^2) = \lim_{x \rightarrow 3} (5x)$   
 $\frac{5}{30}$   
 $\frac{\pi}{4}$



$\int (2x+1)^{-2} dx = \frac{1}{2} x \frac{(2x+1)}{-1} = -\frac{1}{2} x(2x+1) = -x^2 - \frac{1}{2}x$   
 $\lim_{n \rightarrow \infty} \frac{6n^2 + 4n + 9}{2n^2 - 3n + 5} = \frac{6}{2} = 3$   
 $\lim_{x \rightarrow 3} (x^2 - 23x + 8) + (5x^3 + 7x^2 + 12) = 9 - 69 + 8 + 135 + 63 + 12 = 158$   
 $\lim_{x \rightarrow 3} \frac{7}{33 + x^3} = \frac{7}{33 + 27} = \frac{7}{60}$   
 $y = \ln \frac{x+1}{x+2}$   
 $y = \ln x$   
 $y = \ln \frac{x+1}{x+2}$   
 $y = \ln x$   
 $y = \ln \frac{x+1}{x+2}$   
 $y = \ln x$



# NARSES

"Nature and Religion in Southeastern European Space:

Mapping Science and Eastern Christianity relations in Southeastern Europe and Eastern Mediterranean".

Funded by Aristeia-National Strategic Research Framework, 2012-2015.

Project implemented in the Institute of Historical Research, National Hellenic Research Foundation.

( NARSES website <http://narses.hpdst.gr> )

( NARSES website comprises )

- A searchable Database of sources relevant to science and Orthodoxy relations from the 4<sup>th</sup> to the 20<sup>th</sup> centuries.
- Bibliography and texts about the relations between science and Eastern Orthodoxy from the 4<sup>th</sup> c. to the 20<sup>th</sup> c.
- Open access publications of the project.
- Programmes and abstracts of NARSES conferences, symposia, workshops.
- Other NARSES events.

( NARSES conferences (<http://narses.hpdst.gr/events>) )

- International Conference "**Science & Religion**", Athens, 4-6 September 2015. The Conference aimed to bring Science and Orthodoxy studies in the mainstream studies of science and religion by the participation of specialists of renown such as John Hedley Brooke, Anne Laurence Caudano, H. Floris Cohen, Baudouin Decharneux, Peter Harrison, Cristopher Knight, Liu Dun, Alexei Nesteruk, Ronald Numbers, Yakov Rabkin, and Michael Shank.
- International Colloquium "**Cosmogony, Cosmology, Hexameron**", Royal Academy of Belgium, Brussels, 18-19 September 2014 (coorganised with the Centre Interdisciplinaire d'Études des Religions et de la Laïcité, Université Libre de Bruxelles).
- Symposium "**Religions as a means for/against communicating sciences: Orthodoxy, Catholicism, and Reformation**", in the frame of the 6th International Conference of the European Society for the History of Science, Lisbon Portugal, 4-6 September 2014.
- **2nd Narses workshop**, Ermoupolis, Syros, 2-4 July 2014.
- **1st Narses workshop**, Ermoupolis, Syros, 7-8 July 2013.
- International Colloquium "**Europe and Modern Science-The History of a Mutual Constitution**", Nantes, 21-22 February 2013 (coorganised with the Centre Atlantique de Philosophie, Université de Nantes).



$(a_1; m_1) + (a_2; m_2) = (a_1 + a_2; m_1 + m_2)$   
 $f_2(x) = \sin(x) (3; 7) + (2; 9) = (3+2; -7+9) = (5; 2)$   
 $y = \ln \frac{x+1}{x-2}; Ax + (B+2A) = x$   
 $\lim_{x \rightarrow 3} \frac{x^3 - 4}{4x^2} = \frac{3}{30} + \frac{5}{30} = \frac{2}{30}$   
 $\lim_{x \rightarrow 3} (2x^2) = \lim_{x \rightarrow 3} (5x)$



$\int (2x+1)^{-2} dx = \frac{1}{2} x \frac{(2x+1)}{-1} \frac{2n^2+3n+5}{6n^2+4n-9} \frac{3}{30}$   
 $\lim_{n \rightarrow \infty} \frac{6n^2 + 4n + 9}{2n^2 - 3n + 5}$   
 $y = \ln \frac{x+1}{x-2}$   
 $\lim_{x \rightarrow 3} (x^2 - 23x + 8) + (5x^3 + 7x^2 + 12)$   
 $\cos 2A + (Ax + B) = 2A + Ax + B = x$   
 $(3 \cdot \text{const} - \text{const} + x^2)' = (3 \text{const})' =$



## ( An overview of NARSES project )

The aim of the NARSES project was to map the relationship between sciences and religion from the 4<sup>th</sup> c. A.D. to the 20<sup>th</sup> c. in Southeastern Europe and the East Mediterranean. It focused on social formations where Eastern Christianity was, depending on the period, dominant or an important religious tradition.

The interdisciplinary team of the project comprised specialists in history of science, history of philosophy, history of religion, history of education and sociology. The team was assisted by specialists in the relations between science and religion of the mainstream history of these relations and had also the backing of the Institute of Historical Research of the National Hellenic Research Foundation which has a strong component of history of Byzantium and Modern Hellenism.

NARSES project aimed to collect, critically examine and catalogue the main texts in Greek language concerning the relations between science and Orthodox Christianity: religious texts on nature, scientific texts evincing theology, and canonical texts on knowledge and sciences. Therefore the project aimed to map the complexity of the relations sciences-Orthodox Christianity and to study the Eastern Christianity groups active in debates on nature and the institutions responsible for the production and negotiation of knowledge about nature and God. The geographical area covered is variable. Until the 15<sup>th</sup> c. the area is that of the influence of the Byzantine empire, from the 15<sup>th</sup> to the 19<sup>th</sup> centuries that of the Orthodox communities of the Ottoman empire and the Venetian possessions, and after the 19<sup>th</sup> century that of the Greek state.

### NARSES project was innovative on three fronts:

It was the first time ever that an organised attempt was made to map the history of the relations between science and Eastern Orthodoxy during the long period.

It used a multidisciplinary approach in order to study the complexity of the relations during this long period between Orthodoxy and philosophy of nature.

It brought the history of the relations between Orthodoxy and sciences in the mainstream studies of the history of the relations science and religion.

NARSES project revealed an important characteristic

of Orthodox Christianity concerning science: although during the 3<sup>rd</sup>-8<sup>th</sup> centuries most of the Greek Orthodox Fathers and their Byzantine followers attempted to study Creation by means of ancient Greek philosophical tools, after the Iconoclastic period (711-843) the dominant theology promoted rigid dogmas that did not attribute to the sciences and the universe the same significance as before. The focus then shifted to Man's inner life as an image of God than on the physical world as an image of the divine creation. This attitude was enhanced by the Hesychast movement of the 14<sup>th</sup> century which promoted the idea of a direct contact between the believer and God, without the intermediation of any rational thought. The project has shown that the spiritual hard-core of theosis, as the fourteenth-century Hesychasm elaborated it, was greatly influential across the centuries, through its transformations and within its various forms across different Orthodox countries conforming to the changing socio-political contexts and the relations of science and religion in the Orthodox world. This influence marginalized the more inclusive Orthodox approaches of scientific and secular knowledge.

NARSES has shown that the practice of honouring God by praising Creation was not always in the same degree appreciated and promoted during the long history of science-Orthodoxy relations, especially by the monks, but also during certain periods by the official Church. The intermediation of science between believers and Creation, so evident in Western Christianity, was a controversial topic in the East. Especially in the monastic Orthodoxy, the theological conception of deification was identified to an ascetic ideal that underlined a kind of otherworldliness and dismissal of the physical world, associated with an undervaluation of discursive and demonstrative reason. In this perspective, especially since the 13<sup>th</sup> century, according to the dominant spirituality, science and secular knowledge were not conceived as an indispensable, intermediary stage in the process of human union with God. By insisting on the limits and the inconsistency of reasoning and intuitive imagination without the synergy of divine grace, Orthodox spirituality deprived indirectly the discursive knowledge, inherent in sciences, of its value as a constructive mediation in humanity's quest of knowing God.

NARSES project established that the transition of Eastern Orthodoxy from pre-modernity to modernity was not at all a smooth process. Orthodox people, owing to historical vicissitudes (mainly the Ottoman occupation) did not directly partake in the fifteenth-century European



$(a_1; m_1) + (a_2; m_2) = (a_1 + a_2; m_1 + m_2)$   
 $f_2(x) = \sin(x) (3; -7) + (2; 9) = (3+2; -7+9) = (5; 2)$   
 $\lim_{x \rightarrow 3} y = \frac{x^3 - 4}{4x^2} - \frac{1}{6} = -\frac{3}{30} + \frac{5}{30} = \frac{2}{30}$   
 $y = \ln \frac{x+1}{x+2}; Ax + (B+2A) = x$   
 $\lim_{x \rightarrow 3} (2x^2) = \lim_{x \rightarrow 3} (5x)$



$\frac{\partial F_z}{\partial x} \left( \frac{\partial F_y}{\partial z} + \frac{\partial F_z}{\partial y} \right) \int (2x+1)^{-2} dx = \frac{1}{2} x \frac{(2x+1)}{-1} \frac{2n^2+3n+5}{6n^2+4n-9} \frac{3}{30}$   
 $\lim_{n \rightarrow \infty} \frac{6n^2 + 4n + 9}{2n^2 - 3n + 5}$   
 $y = \ln \frac{x+1}{x+2}$   
 $\lim_{x \rightarrow 3} (x^2 - 23x + 8) + (5x^3 + 7x^2 + 12)$   
 $\cos 2A + (Ax+B) = 2A + Ax + B = x$   
 $y^{10} = 6x \ln x + \frac{3x^2}{x} + 2x = (3 \cdot \text{const} - \text{const} + x^2)' = (3 \text{const})' =$



Renaissance. The reception of the European Enlightenment provoked controversies and ambivalent approaches as well. This was enhanced by the traditional adversity between the Catholic Church and Eastern Orthodoxy, despite the fact that most Orthodox scholars were educated in the West after the 16<sup>th</sup> century. Modern science is a European phenomenon and therefore it was assimilated by traditional Orthodox circles to Western Christianity. The debate where Orthodoxy belongs, to West that means Europe, or East, that means Asia, has its roots in that period. The partisans of the emancipation from the Ottoman Empire believed in European Modernity and science played for them a central role. Therefore the relations between Orthodoxy and science became an important issue among Orthodox people, whether they were clerics or seculars. This debate continues until the present, where the question of a European identity is again topical.

Exploring historically the relationship sciences-religions is essential in order to understand the relation societies-sciences. The NARSES project was an important step in order to close the gap between the penury of the studies of the history of the relations between science and Orthodox Christianity and the proliferation of these studies as far as it concerns Western Christianity.

( **NARSES team** )

*Project coordinator*

**Efthymios Nicolaidis**, Director of research, IHR/NHRF

*Post-doctoral researchers*

**Eudoxie Delli**, PhD of philosophy

**Kostas Tampakis**, PhD of history of science

*Doctoral researchers*

**Maria Darmou**, PhD candidate science and religion

**Nikos Livanos**, PhD candidate byzantine history

*Scientific collaborators*

**Taxiarchis Kolias**, Professor, University of Athens,

Director IHR/NHRF, Byzantine civilisation

**Gerasimos Merianos**, Researcher, IHR/NHRF,

Byzantine history

**Kostas Skordoulis**, Professor, University of Athens,

science education

**George Vlahakis**, Assistant Professor, Hellenic Open

University, history and philosophy of science

*Web manager*

**Charikleia Christantoni**, M.A. computer science

*Events and editorial assistant*

**Danai Avgeri**, M.A. cultural management

*Advisers*

**Michel Blay**, Directeur de recherches

de classe exceptionnelle, CNRS

**Ronald Numbers**, Emeritus Professor,

University of Wisconsin

**Jennifer Rampling**, Professor, University of Princeton



$(a_1; m_1) + (a_2; m_2) = (a_1 + a_2; m_1 + m_2)$   
 $f_2(x) = \sin(x) (3; 7) + (2; 9) = (3+2; -7+9) = (5; 2)$   
 $y (3; 7); (2; 9); \frac{1}{5 \cdot 1 \cdot 7}$

$y = \frac{x^3 - 4}{4x^2} - \frac{1}{6} = -\frac{3}{30} + \frac{5}{30} = \frac{2}{30}$   
 $y = \ln \frac{x+1}{x+2}; Ax + (B+2A) - x$   
 $\frac{5}{30}$   
 $\frac{\pi}{4}$   
 $\frac{5}{4} \lim_{x \rightarrow 3} (2x^2) - \lim_{x \rightarrow 3} (5x)$



$y = x \left( \frac{\partial F_z}{\partial z} \right) \left( \frac{\partial F_y}{\partial y} + \frac{\partial F_z}{\partial z} \right) \int (2x+1)^{-2} dx = \frac{1}{2} x \frac{(2x+1)}{-1} \frac{2n^2+3n+5}{6n^2+4n-9} \frac{3}{30}$   
 $(x) \lim_{x \rightarrow 3} (x^2 - 23x + 8) + (5x^3 + 7x^2 + 12)$   
 $\lim_{x \rightarrow 3} \frac{2n^2 - 3n + 5}{2n^2 - 3n + 5}; \lim_{n \rightarrow \infty} \frac{6n^2 + 4n + 9}{2n^2 - 3n + 5}$   
 $y = \ln \frac{x+1}{x+2}; \frac{1}{5 \cdot 1 \cdot 7}$   
 $y^{10} = 6x \ln x + \frac{3x^2}{x} + 2x = (3 \cdot \text{const} - \text{const} + x^2)' = (3 \text{const})' = \dots$



$(z^2 + 3xy) = 2z$ ;  $\lim_{n \rightarrow \infty} \frac{2n^2 - 3n + 5}{6n^2 + 4n - 9} = \frac{2}{6} = \frac{1}{3}$ ;  $\lim_{x \rightarrow 3} \frac{3x^2 - 2x + 5}{33 + x^3} = \frac{27 - 6 + 5}{33 + 27} = \frac{26}{60} = \frac{13}{30}$   
 $(3 \cdot \text{const}) + (3 + \text{const}) = y \cdot \text{const}$ ;  $y = \ln x$ ;  $y^{10} = 6x \ln x + \frac{3x^2}{x} + 2x = (3 \cdot \text{const} - \text{const} + x^2) = (3 \text{const})'$   
 $\ln x + 3x + 2x + 6x \ln x + 5x$ ;  $y = \ln \frac{x+1}{x+2}$ ;  $\frac{1}{11-2 \cdot 2}$   
 $(2y^2 + 3xz) = 4y(3yz + x^2)$ ;  $\lim_{n \rightarrow \infty} \frac{2n^2 - 3n + 5}{6n^2 + 4n - 9}$ ;  $(z^2 + 3xy) = 2z$ ;  $(2y^2 + 3xz) = 4y$



$\lim_{x \rightarrow 3} (2x^2)$ ;  $\int_0^{\pi/4} \frac{dx}{\cos^2 x} = \int_0^{\pi/4} \frac{1}{\cos^2 x} \cdot dx = \tan x \Big|_0^{\pi/4} = \tan \frac{\pi}{4} - \tan 0 = 1 - 0 = 1$   
 $\lim_{n \rightarrow \infty} \frac{2n^2 + 3n + 5}{6n^2 + 4n - 9} = \lim_{n \rightarrow \infty} \frac{2 - 2/n + 5/n^2}{6 + 4/n - 9/n^2} = \frac{2}{6} = \frac{1}{3}$   
 $\int_0^{2\pi} \sin^2 a \, d\varphi = \int_0^{2\pi} (6 - 2 \cos 2\varphi) \, d\varphi = 12\pi$ ;  $\int_{-1}^1 \int_{-1}^1 x^4 \, dx = \frac{x^5}{5} \Big|_{-1}^1 = \frac{1^5}{5} - \frac{(-1)^5}{5} = \frac{1}{5} + \frac{1}{5} = \frac{2}{5}$   
 $\lim_{x \rightarrow 3} (2x^2)$ ;  $\int_0^1 \int_0^1 (4 - 8^3 \cos^2 \varphi) \, r \, dr = \int_0^1 (4 - 8^3 \cos^2 \varphi) \cdot \frac{r^2}{2} \Big|_0^1 \, d\varphi = \int_0^1 (2 - 4^3 \cos^2 \varphi) \, d\varphi = \int_0^1 (2 - 64 \cos^2 \varphi) \, d\varphi = 2\pi - 64 \int_0^1 \cos^2 \varphi \, d\varphi = 2\pi - 64 \cdot \frac{\varphi + \sin 2\varphi}{2} \Big|_0^1 = 2\pi - 32(1 + \sin 2) = 2\pi - 32 - 32 \sin 2$



NARSES

<http://narses.hpdst.gr>