

Vissani Francesco

Position: Senior INFN researcher.
Head of Gran Sasso Theory group since 2006.
ICRANet lecturer since October 2009
Period covered: 2009-2010



Scientific Interests

Models of neutrino signal from gravitational collapse. Connection with gravity wave search.
Very high energy neutrinos from supernova remnants. Phenomenology of extensions of the standard model of elementary particles.

Conferences and educational activities

Conferences in 2010

May: Frontier Objects in Astrophysics and Particle Physics (Vulcano 2010 Workshop) Vulcano, Italy; talk on What is the Issue with SN1987A Neutrinos?

June: Organization of the meeting in honor of G. Senjanovic The Joy of Making Physics (Goranfest) at Split, Croatia.

July: The sun, the stars, the universe and general relativity (second Galileo-Xu Guangqi meeting), Ventimiglia, Italy; talk on Progresses in Neutrino Astronomy.

September: National meeting of the Italian Physics Society (SIF) Bologna, Italy: talk on High Energy Neutrino Astronomy: From the Hope for Surprises to Predictions.

October: Second PHYSUN Workshop, LNGS, Italy: Summary talk.

Work with students

Advisor of Giulia Pagliaroli. PhD thesis on supernova neutrinos, defended with success on April 2009 at L'Aquila University. Since December 2009, Giulia joined the theory group of Gran Sasso with a postdoc contract.

Advisor of Andrea Lami, Rome 3 U., for a diploma thesis on electroweak reactions.

Collaborates with Fernando Rossi Torres, PhD student at Campinas University, Brazil on supernova data analysis and neutrino mass studies.

Collaborates with Maria Laura Costantini, ICRANet, Pescara, on neutrinos from SN1987A.

Collaborates with Narek Sahakyan, ICRANet, Pescara and Rome U., on high energy neutrinos and gamma rays.

Other commitments

SIF referent person at LNGS since 2009.

Coordinator for LNGS of the Virgo-EGO Science Forum (VESF) since April 2009.
Member of the scientific committee for the ICRA Net-INFN agreement.

INFN representative in the Science Advisory Committee of ApPEC/ASPERA.

List of Scientific Works

SIGNALS OF LEFT-RIGHT SYMETRY IN ACCELERATORS AND LOW ENERGY LEPTONIC PROCESSES.

V. Tello, M. Nemevsek, F. Nesti, G. Senjanovic, F. Vissani.

Submitted for publication.

THE DIFFUSE SUPERNOVA NEUTRINO BACKGROUND: EXPECTATIONS AND THEORETICAL UNCERTAINTIES FROM SN1987A.

F. Vissani, G. Pagliaroli.

Submitted for publication.

ON THE PROSPECTS FOR HIGH-ENERGY GALACTIC NEUTRINO ASTRONOMY.

F. Vissani, F. Aharonian, N. Sahakyan.

Submitted for publication.

WHAT IS THE ISSUE WITH SUPERNOVA NEUTRINOS?

F. Vissani, M.L. Costantini, A. Ianni, G. Pagliaroli.

Proc. of the Vulcano 2010 workshop.

USING SUPERNOVA NEUTRINOS TO MONITOR THE COLLAPSE, TO SEARCH FOR GRAVITY WAVES AND TO PROBE NEUTRINO MASSES.

F. Vissani, G. Pagliaroli, F. Rossi-Torres.

Proc. of the 1st Galileo – Xu Guangqi meeting.

NEUTRINO MASS BOUND IN THE STANDARD SCENARIO FOR SUPERNOVA ELECTRONIC ANTINEUTRINO EMISSION.

Giulia Pagliaroli, Fernando Rossi-Torres, Francesco Vissani.

Astropart. Phys. 33 (2010) 287.

SEARCHING FOR PROMPT SIGNATURES OF NEARBY CORE-COLLAPSE SUPERNOVAE BY A JOINT ANALYSIS OF NEUTRINO AND GRAVITATIONAL-WAVE DATA.

Isabel Leonor et al., including Francesco Vissani.

Class. Quant. Grav. 27 (2010) 084019.

ON THE GOALS OF NEUTRINO ASTRONOMY.

F. Vissani, G. Pagliaroli, F.L. Villante.

Nuovo Cim. C32 (2009) 353.

COSMIC RAYS AND NEUTRINOS FROM SUPERNOVA REMNANTS FROM VHE GAMMA RAY DATA.

F.L. Villante, F. Vissani.

Nucl.Phys.Proc.Suppl. 188 (2009) 261.

NEUTRINI DALLO SPAZIO (in Italian)

G. Pagliaroli, F.L. Villante, F. Vissani.

Nuovo Saggiatore 25, no.3-4 (2009), 5-19.

THE LIKELIHOOD FOR SUPERNOVA NEUTRINO ANALYSES.

A. Ianni, G. Pagliaroli, A. Strumia, F.R. Torres, F.L. Villante, F. Vissani.

Phys.Rev.D80 (2009) 043007

NEUTRINOS FROM SUPERNOVAE AS A TRIGGER FOR GRAVITATIONAL WAVE SEARCH.

G. Pagliaroli, F. Vissani, E. Coccia, W. Fulgione.

Phys.Rev.Lett.103 (2009) 031102

IMPROVED ANALYSIS OF SN1987A ANTINEUTRINO EVENTS.

G. Pagliaroli, F. Vissani, M.L. Costantini, A. Ianni.

Astropart.Phys.31 (2009) 163

FEATURES OF KAMIOKANDE-II, IMB AND BAKSAN OBSERVATIONS AND THEIR INTERPRETATION
IN A 2-COMPONENT MODEL FOR THE SIGNAL.

Francesco Vissani and Giulia Pagliaroli.

Astronomy Letters 35 (2009) 1.