

INTEGRAL looks AHEAD to multimessenger astrophysics Final Remarks

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Geneva 11-15 February 2019

Many thanks to ...



A Swiss symbol as a memory



Find refills all around the world ... do not throw away when you finish the first refilll!

You might not know that our speakers ...



Award ceremony at the Farnesina in Rome

It was a great honor to be awarded the Italian Bilateral Scientific Award (also known as the Farnesina prize) by the Minister of Foreign Affairs, Angelino Alfano, and the Minister of Public Education, Valeria Fedeli.

The award is given once a year to “an Italian eminent scientist who, in performing research abroad, has made a remarkable contribution to the advancement of science and technology.” Very happy to see my work appreciated in my home country.

20 APRIL 2018

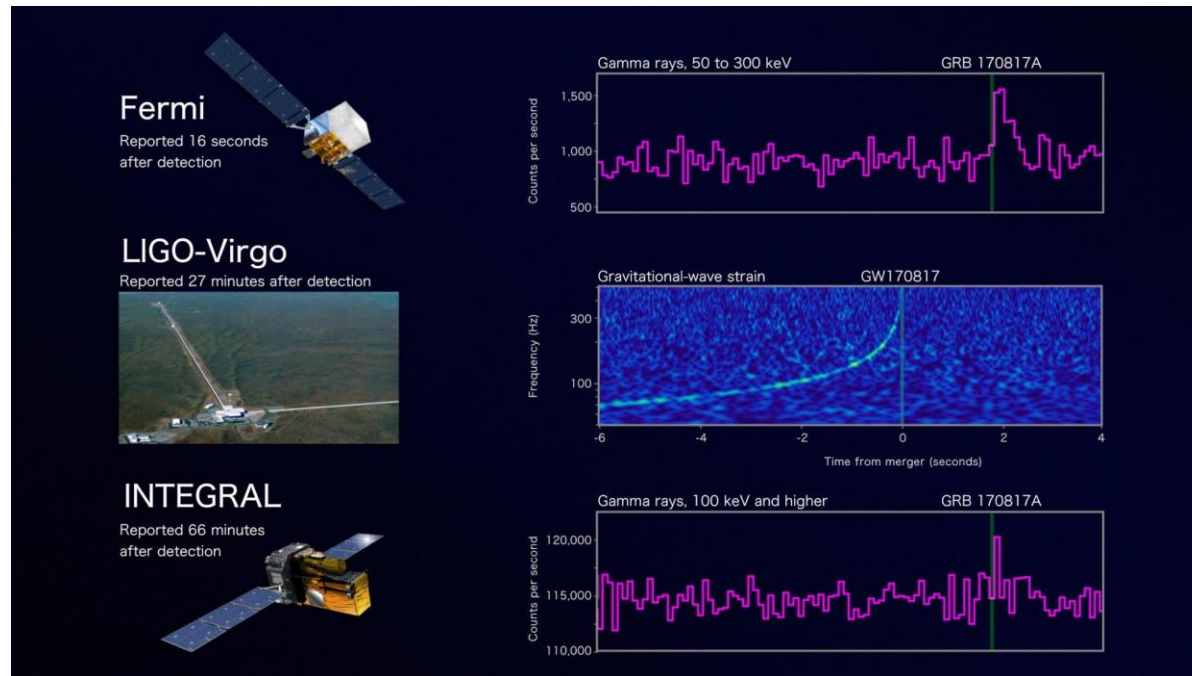
FOR TIME, MARICA BRANCHESI IS AMONG THE 100 MOST INFLUENTIAL PEOPLE



There is the Italian researcher Marica Branchesi in TIME's annual list of the world's 100 most influential people. A new recognition, therefore, for the work done by Branchesi, researcher at GSSI – Gran Sasso Science Institute – and INFN, with the historical observation of the collision of two neutron stars: an event that introduced a new way of studying our universe, opening the era of multi-messenger astronomy. As a member of the LIGO/VIRGO collaboration, Marica Branchesi's task was to coordinate the two scientific communities respectively observing gravitational waves and electromagnetic radiation. A coordination which has thus allowed for the extraordinary

scientific result on the first observation of this astrophysical cataclysm with the study of different cosmic messengers: gravitational waves and photons. Branchesi was amongst the speakers of the conference that was held live in Washington D.C. in sync with many other conferences all over the world, on 16 October 2017, during which the discovery was announced to the world.

INTEGRAL in Multi-Messenger

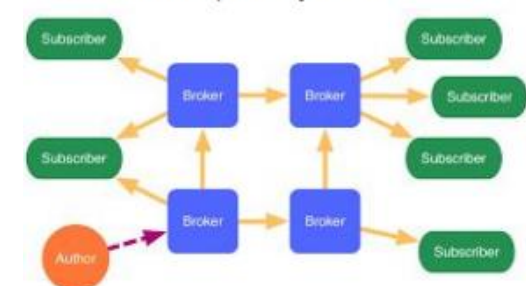


PICsIT GRB Spectral Capabilities

- With 8 energy channels, can make spectra
- Started with possible-kilonova GRB 150101B
- Low count-rate and ~ 26 deg off-axis
- Can compare to *Fermi*/GBM and *Swift*/BAT



Realtime interoperability: GCN, VOEvent

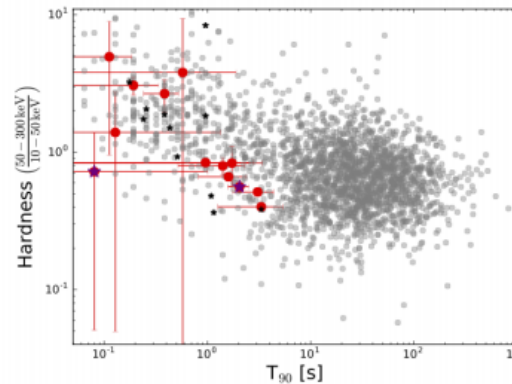


Twin GW Candidates from GBM?

Twins of GRB 170817A - GRBs with likely BNS

Main question: "How do you define similarity based on one event?"

- 1 "gold plated" event: GRB 170817A
- 1 BNS - candidate: GRB 150101B
kilonova(?), $z \sim 0.13$, 'regular' GRB
- Hard peak + soft tail
- **13 (11+2) candidates**, rate: 1+ /yr



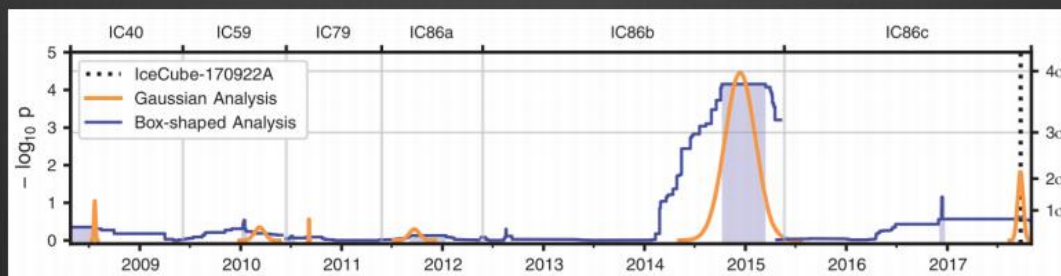
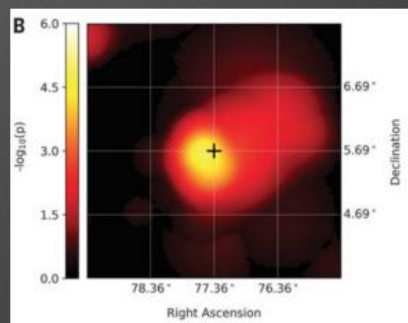
von Kienlin, PV et al, 2019 (arXiv:1901.06158)



Neutrinos

“Neutrino flare” 2014/2015

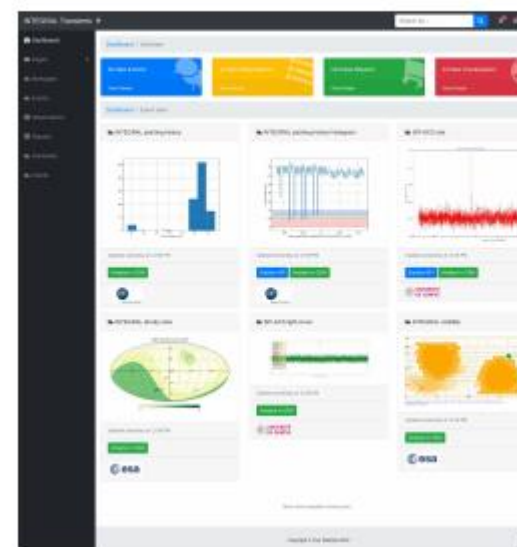
- IceCube archival search found 3.5sigma excess positionally consistent with the same blazar



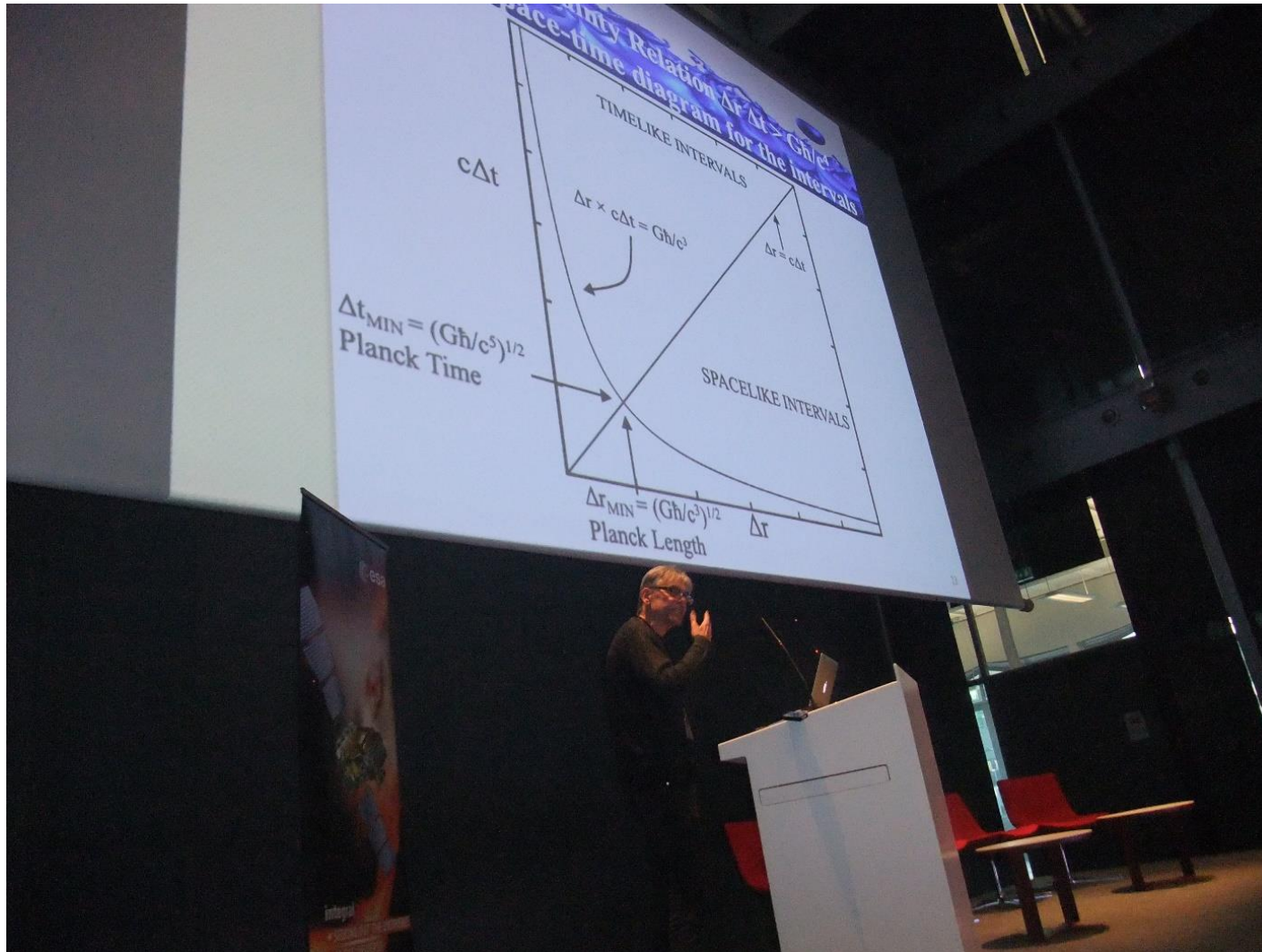
IC coll. 2018

12th INTEGRAL Conference

INTEGRAL transient dashboard



Quantum gravity with nano satellites!



Sending 100+ satellites with
Elon Musk

Prof. Thierry Courvoisier

- ... blood on walls and tiers in the eyes
...
- ... and of all fights, only a dry document which says ESA should provide “this” to ISDC and ISDC should provide “that” ...
- ... one billion in 20 years is peanuts compared to the expenses politicians make for irrelevant projects, while we investigate the Universe ...

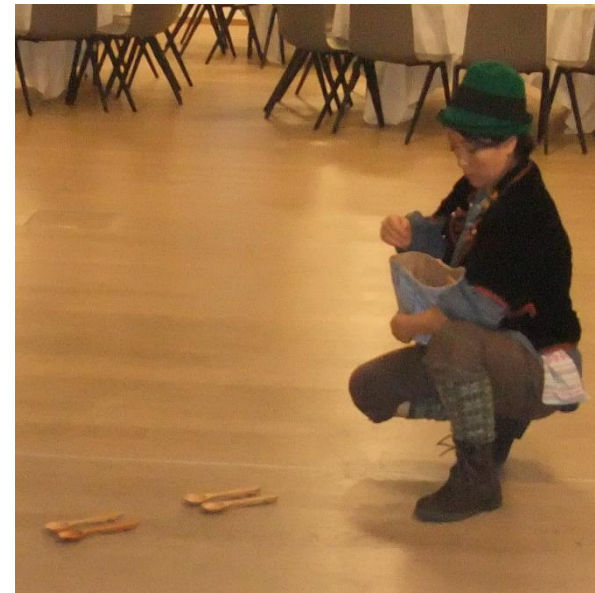


Heidi – a street performance by YongSoon Cho Jaquet



**YoungSoon Cho Jaquet nous
(re)plonge dans les alpages
suisses avec «Heidi»**

En 2015, la chorégraphe et danseuse
YoungSoon Cho Jaquet et la chanteuse Héroïse
Fracheboud ont créé «Heidi», une performance



Growing at INTEGRAL conferences



Chama Brandt
turned 18 in Geneva



Mike Revnivtsev Prize Award Ceremony



Thomas Siegert for his scientific achievements with INTEGRAL

Thanks for your presence !



Image Credits

- Nice Photos by Peter Kretschmar
- Bad photos by me....
- WWW pages

Return your badges!

....and let's look forward together to many more exciting years with INTEGRAL and the multi-messenger Astrophysics!