

GRANDMA Collaboration





GRANDMA consortium

More than 62 groups, laboratories, observatories

101++ Members

AbaO, American University of Sharjah, CNRS Artemis, GRAPPA - University of Amsterdam - CNRS APC - Taras Shevshenko National University of Kyiv - University of Iceland, - CNRS LAM - ICAMER - IAA - LAPP - Ulugh Beg Astronomical Institute - University of Minnesota, - University of Potsdam - OHP, - IJCLab - IAP - University of the Virgin Islands, United States Virgin Islands - FZU - Laboratoire de Physique et de Chimie de l'Environnement, Université Joseph KI-ZERBO - CNRS IRAP - Beijing Planetarium- Swinburne University of Technology - NOIRLab - NARIT - CNRS IPHC - Université of Paris-Saclay - IJCLAB - Laboratori Nazionali del Sud - Tsinghua University - UBAI

GRANDMA is represented in North and South America, Europe, West Asia, Middle East, East Asia, Africa, (and maybe also Australia).

- + Brazil (LNA), Egypt (NRIAG), Morocco (OUCA), China (Ali-50) took data during the GRB campaign
- + Belgium, Brazil, Burkina Faso, Netherlands, Switzerland



GRANDMA articles

[Grandma: a network to coordinate them all](#), August, 2020

[Multi-messenger astrophysics and the GRANDMA generation](#), 24 July, 2020

[GRANDMA Observations of Advanced LIGO's and Advanced Virgo's Third Observational Campaign](#), 23 June, 2020, cited 57

[The first six months of the Advanced LIGO's and Advanced Virgo's third observing run with GRANDMA](#), March 2020, cited 39

[GRANDMA Observations of ZTF/Fink Transients during Summer 2021](#), February 2022,
awaiting for final approval

[Other related publications here](#)

[Next publications is on the GRB campaign](#)

GRANDMA network



- + 139 subscribers to the Citizen science program with about 20 amateurs participant during our last observational campaign with ZTF

Science objectives & organization

PI. Sarah Antier Co-PI Alain Klotz

Citizen Science Program: Damien Turpin

GW Program

Kilonovae

Binary neutron star mergers
EM counterpart of GW events

Sarah Antier

Orphan Kilonovae (Fink)
Julien Peloton

Analysis

Tim Dietrich (via
Numanji)

Neutrino Program

Thierry Pradier (Supernova galactique
Jets ? AGN ?)

Supernovae with SNEWs
Alexis Coleiro

Ref KM3Net
Damien Dornic

Ref IceCube
Gwenaël de Wasseige

IJCLAB

All the infrastructure

*Possible connection to SVOM as
volunteering facilities*



GRANDMA projects

WP-A GRANDMA consortium (Sarah Antier) :

WP-B DB and web interface (Theophile, Thomas, Julien): <https://gitlab.in2p3.fr/icare>

WP-C Characterization of the candidates and spectro (Iara Tosta e Melo)

WP-D Detection pipeline (Sergey Karpov) <https://gitlab.in2p3.fr/icare/stdpipe>

WP-E Observation plan and alert (Nicolas)

WP-F Network optimisation (Michael Coughlin)

<https://github.com/mcoughlin/gwemopt>

WP-G Citizen Science (Damien Turpin) https://gitlab.in2p3.fr/icare/Kilonova_Catcher

WP-H Multi-messenger data analysis (?)

WP-I GRANDMA infrastructure Liason IT (Gérard Marchal-Duval)



GRANDMA project

Project - Consortium

- LOIs, functioning of project, publications, telecons, etc
- Synergies with other groups

Infrastructure

- shift platform and shifter
- reporting
- DB and interoperability
- end to end test sequence

Joint Scheduling

- New alert system of the LVC
- rapid follow-up
- observational science

Data analysis

- Transient detection from wide field of view
- Photometric follow-up
- Spectroscopic follow-up

Science

- improve modeling and associated infrastructure
- MM data analysis (for example with GRB)
- Host galaxy catalogs

GRANDMA core team

The core team is in charge of the acceptance of new members, groups, and on the scientific directions of the collaboration.

Embryon of the core team 2021 - 2022

S. Antier, A. Klotz, T. Pradier, J. Peloton, D. Turpin, S. Karpov, I. Tosta e Melo, M. Coughlin, K. Noysena

GRANDMA collaboration

Australia, UWA (Coward et al.),
observations (on demand) & GRB physics

China, Tsingua, Beijing Planetarium (Wang et al)
observations & Supernova physics

Thailand, NARIT, (Noysena et al)
observations & WPD

Uzbekistan, UBAI (Tillayev et al)
observations & new instrument prep

Georgia, Abastumani (Kochiashvili et al)
observations & new instrument prep

Azerbaijan, Shao (Ismaylov et al)
observations (photo&spectro)

Emirates, AUS (Guessoum et al)
WPE & WPH & GRBphysics & KNphysics

Ukraine, Lisnyky (Baransky et al)
observations & update instrument

Africa, Burkina Faso (Kiendrebeogo et al.),
WPE & WPF & WPC & Kilonova

Tchequia, UWA (Prouza et al.),
observations & WPD & neutrinos

Africa, NRIAG (Takey et al.),
observations

Africa, NRIAG (Benkhaldoun et al.),
observations & KM3NET

Germany, Postdam (Dietrich et al.),
observations & WPH & KN physics & GW/BNS physics
& Numerical relativity

Belgium, Louvain (De Wasseige et al.),
neutrino physics & IceCube obs

Belgium, Uni. Libre de Bruxelles (Van Eck et al.),
Optical obs & Nuclear Astrophysics

Netherlands, Utrecht, Nikhef (Caudill et al.),
BNS physics & WPH & GW physics

Spain IAA (Kann et al.),
observations & WPC & GRB physics

USA, Uni. Virgin Islands (Orange et al.),
observations

USA, Uni. Minnesota (Coughlin et al.),
WPF & WPH & GW/BNS physics & Kilonova

Brazil/INFNi. , LNA (Tosta e Melo et al.),
observations & WPC

France, IRAP (Klotz et al)
Obs & WPD & GRB physics

France, IJCLAB (Hello et al)
WPD & WPI & WPG & GW physics & Fin

France, CEA (Turpin et al)
WPG & GRB physics

France, APC (Coleiro et al)
Neutrino physics & Supernova physics &
SNEWs & WPG

France, IAP (Daigne et al)
GRB/Kilonova physics & BNS
physics & WPC-E

France, ESILV (Barthet, Maunier et
al) WPB

France, IRAP (Klotz et al)
Obs & WPD & GRB physics

France, IPHC (Pradier et al)
Neutrino physics & GW physics

France, LAPP (Was et al)
GRB & GW physics

France, CPPM (Dornic et al)
neutrino physics & Antares/KM3NET obs

France, Artemis (Christensen et al)
WPE-F & WPH & GW/BNS physics & Kilonov
G

France, LAM (Basa et al)
observations & new instruments

GRANDMA policy

All groups and individual need to contribute to the development and functioning of the GRANDMA collaboration

- Development
 - technical work in a work package
 - observation
 - engineering
 - management/organization
 - grant the observational time, ToO proposals, other writings
- Minute takers
- Shifter during large observational campaign (neutrinos and GWs)

Alerts (neutrino, GW, fink) transmitted via GRANDMA are sent to either observational teams or amateurs astronomers.

If the alert is accepted for observations, the data belongs to GRANDMA for the period of a year (or before if the GRANDMA publication is done) and should respect the GRANDMA management plan. The data needs to be uploaded to owncloud as soon as possible and the associated data reduction depends on the observational teams.

Short author lists or other collaboration articles can be made in parallel but for direct work targeting either a tool / analysis that potentially will be used in GRANDMA, the authors need (before the submission) to inform the core team.



Our objectives during the workshop

- Meet in person after two years and Welcome new GRANDMA members
- Work to improve the efficiency of operations:
 - Better coordination of observations
 - Rapid detection and photometry of new transients
- Work for the scientific exploitation of our observations (past and future)

Thanks everyone !!