



# Welcome!

**Workshop on Gravitational Waves and High Energy Neutrinos  
18-20 May 2009 Paris (France)  
Université Paris Denis Diderot**

**AstroParticule et Cosmologie (APC)**

# GW HEN workshop



- Welcome and thank you for your participation!
- GW, HEN, theory and  $\gamma$ -ray astronomy
- We wish to hear fruitful discussions

# Program

- Mon
  - Detectors
  - Science case
- Tue
  - GRBs and GW+HEN
  - Other GW+HEN sources
- Wed
  - Data analysis
  - White paper

Tsvi Piran had to cancel his participation at the last minute. morning session has been updated

# Project: white paper

- **No proceedings but “white paper”**
  - *Idea: talks and discussions be written in the form of a review article contributed collectively by the speakers and participants of the workshop*
  - Outline of the project included in notice
  - Minutes of each session will be taken for memory
- **First contacts with Reviews of Modern Physics**
  - Good feedback from editorial board of RMP  
*“the topic seems an excellent one”*
  - Detailed project to be submitted to RMP
- **Dedicated session on Wed afternoon**
  - Discuss contents
  - Define editorial team and contributors
  - Define distribute writing assignments

## Tentative outline of the proposed review article

This document gives a tentative outline of the proposed review article. The objective is to have a comprehensive survey of the joint GW+HEN detection problem ranging from the common sources to the instruments and data analysis.

The structure follows that of the *First Gravitational Waves and High Energy Neutrinos (GW+HEN) Workshop*, to be held next spring in Paris (18-20 May 2009). A brief summary gives an overview of each part of the article alongwith an estimate of their size.

## GW and HEN detection: status and prospects (5 pages)

This section gives the status of the GW and HEN detectors currently in operation and reviews the plans for future detectors.

### GW detectors

GW primer; Detection principles; Description of the existing detectors and their sensitivity; Overview of the expected astrophysical sources alongwith distance reach; Summary of the observational results; Plans for future detector upgrades; Associated data takings and science reach; Outlook on future detectors

### HEN telescopes

Neutrino emission from astrophysical sources; High-energy (> 100GeV) part of the neutrino spectrum; Detection principles; Description of the existing detectors and their sensitivity (incl. atmospheric neutrino foregrounds); Flux estimate and distance reach from main astrophysical sources; Summary of the observational results; Plans for future detector upgrades; Associated data takings and science reach; Outlook on future detectors

## Science Case for GW+HEN searches (5 pages)

This section gives the “big picture” of the review presenting the general principles and mechanisms giving rise to the GW HEN emission.

### General mechanisms leading to the emission of GW and HEN

Fundamental physics with GW and HEN coincidences  
Quantum gravity and the propagation of high-energy particles;

## Gamma-Ray Bursts (10 pages)

GRB progenitors are the most promising source of GW and HEN emission. This section is devoted to a detailed description of GRBs from the GW+HEN perspective.

### Observational facts

Survey of the observational results concerning the burst and the afterglow (Swift, Integral, Fermi, ...)

### Population, event rates

### GRB standard model

State-of-the-art about GRB modelling; Fireball model;

### Jet formation and beaming

# Instructions for the speakers

- Please give us your slides before session begins or latest at coffee break
- Collect all presentations on one laptop to save time
- Upload your slides [login→My presentation/Upload my slides → Manage material → Add new material]
- Use USB key
- Email to [loc@gwhen-2009.org](mailto:loc@gwhen-2009.org)

# Wifi connection

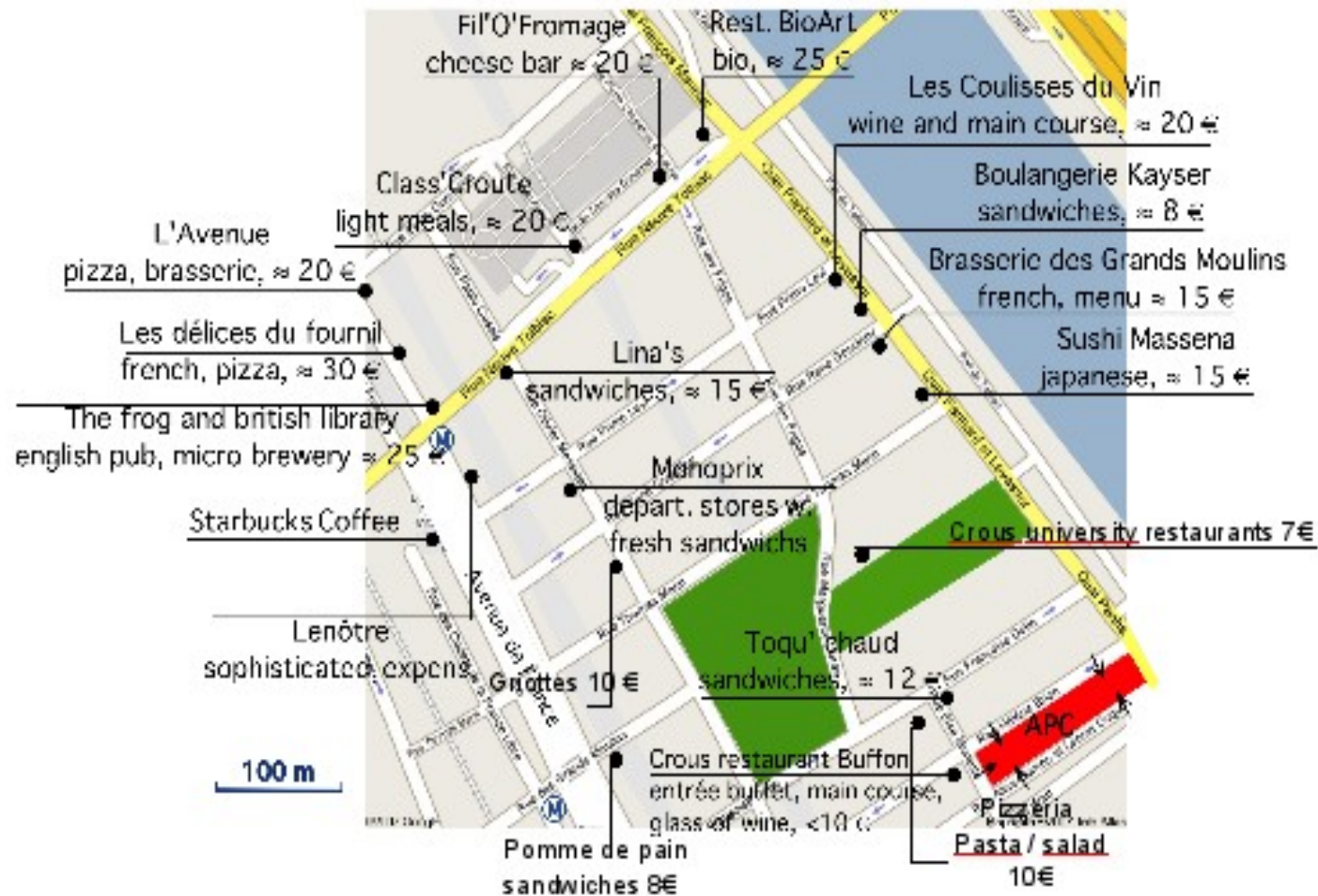
Network: up7d

Login: [gwhen09apc@guest](#)

Password: yuk>1tyt

# Lunch: many possibilities in the area

Restaurants and snacks around APC



# Social dinner today, Café Procope, 20:00

- Dinner is paid by the conference
- Please **confirm** your participation at registration desk

- **Café Procope**

13, rue de l'Ancienne Comédie



*(map in notice distributed with program)*

- Café Procope is the one of the oldest café-restaurant of Paris



Public transportation: <http://www.ratp.com>



# Concert tomorrow (tue) Sorbonne 20:30

- **Booking in advanced**

Payment **today** at registration desk

- **Grand Amphithéâtre de la Sorbonne**

45, rue des Ecoles

M Cluny-Sorbonne/RER Saint-Michel

The concert features the Choir and Orchestra of the Universities of Paris in Mozart's 40<sup>th</sup> symphony and in famous opera arias.



# Need help?



Antoine



Aurélia



Bruny



Eric



Matteo



Véronique

... and Thierry Pradier and Szabi Mårka



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