

# The ALCPG Working Group on Radiative Corrections (LoopVerein)

Conveners:

Ulrich Baur (SUNY Buffalo)

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[www.physics.buffalo.edu/lcwg](http://www.physics.buffalo.edu/lcwg)

*LHC-TI fellows meeting, Madison*

April 30, 2008



American Linear Collider  
Physics Group

# Goal and Activities

Provide a forum to discuss and coordinate activities focused on the theoretical challenges from the ultra-high experimental precision of a future ILC. ([www.physics.buffalo.edu/lcwg](http://www.physics.buffalo.edu/lcwg))

- ▶ Organization of working group meetings at LC workshops.
- ▶ Organization of the **LoopFest** series of workshops, an annual international meeting of experts in precision calculations.

**European activities:** The LoopVerein

Conveners: Stefan Dittmaier and Wolfgang Hollik

Webpage: [wwwth.mppmu.mpg.de/members/loopverein/TheLoopVerein.html](http://wwwth.mppmu.mpg.de/members/loopverein/TheLoopVerein.html)

# The LoopFest



**LoopFest VII** May 14 - 16, 2008  
*Radiative Corrections for the LHC and ILC*  
University at Buffalo  
Buffalo, New York

**Organizers:**  
Ulrich Baur  
Sally Dawson  
Richard Gonsalves  
Doreen Wackerath  
Marcus Weber

<http://www.physics.buffalo.edu/loopfest7>  
email: [baur@buffalo.edu](mailto:baur@buffalo.edu)  
sponsored by ALCPG, BNL, DoE, NSF,  
UB CAS, and the UB Physics Dept.

University at Buffalo  
The State University of New York

The poster features a large background image of the Buffalo Memorial Auditorium at sunset. Two smaller inset images are present: one showing a tree with pink blossoms and another showing a fountain with water spraying upwards.

## LoopFest VII topics:

- ▶ The potential of the LHC and ILC for precision measurements and their role in searching for and disentangling physics beyond the SM.
- ▶ Progress in multi-loop and multi-leg calculations of SM and SUSY cross sections and new approaches.
- ▶ Automation of multi-loop and multi-leg calculations in the SM and beyond.
- ▶ Interfacing fixed higher-order calculations with multi-purpose event generators.

# An example: Helmholtz Alliance *Physics at the Terascale*

“The Strategic Helmholtz Alliance 'Physics at the Terascale' will form a structured network comprising 17 universities, 2 Helmholtz institutes and 1 Max Planck Institute. The Alliance will act as a **tool for a more effective collaboration, in particular between experimentalists and theorists.**” from [www.terascale.de](http://www.terascale.de)

## Alliance Network

- ▶ Alliance WGs (specific topics, small size): Higgs, Top, SUSY/BSM
- ▶ Monte Carlo Network: validation and tuning, new improved multipurpose MC tools, user support, repository
- ▶ Virtual Theory Institute: communication among theory WGs, promotes dedicated calculations, regular video conference seminars
- ▶ Training and Exchange: summer/winter schools, expert workshops, tutorials, guest program



from talk by M.Kraemer at kick-off workshop, DESY 2007

- ▶ A standalone network of fellows or a larger effort to make the best use of existing strength and structures ?
- ▶ How to organize communication and collaboration not only among fellows, but also with other WGs in the U.S. (LoopVerein, CTEQ4LHC, MC4BSM, BSM@LHC, ...), with CMS/ATLAS physics analysis WGs, and maybe also non-U.S. networks such as the Helmholtz Alliance ?
- ▶ Are working groups and something like the Virtual Theory Institute the right format ?
- ▶ What role could LPC at Fermilab or the US ATLAS physics support groups play in such a network (if any)?

