

Introducing Florida Tech

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*High Energy Physics Group
Dept. of Physics & Space Sciences*

Where's Florida Tech ?

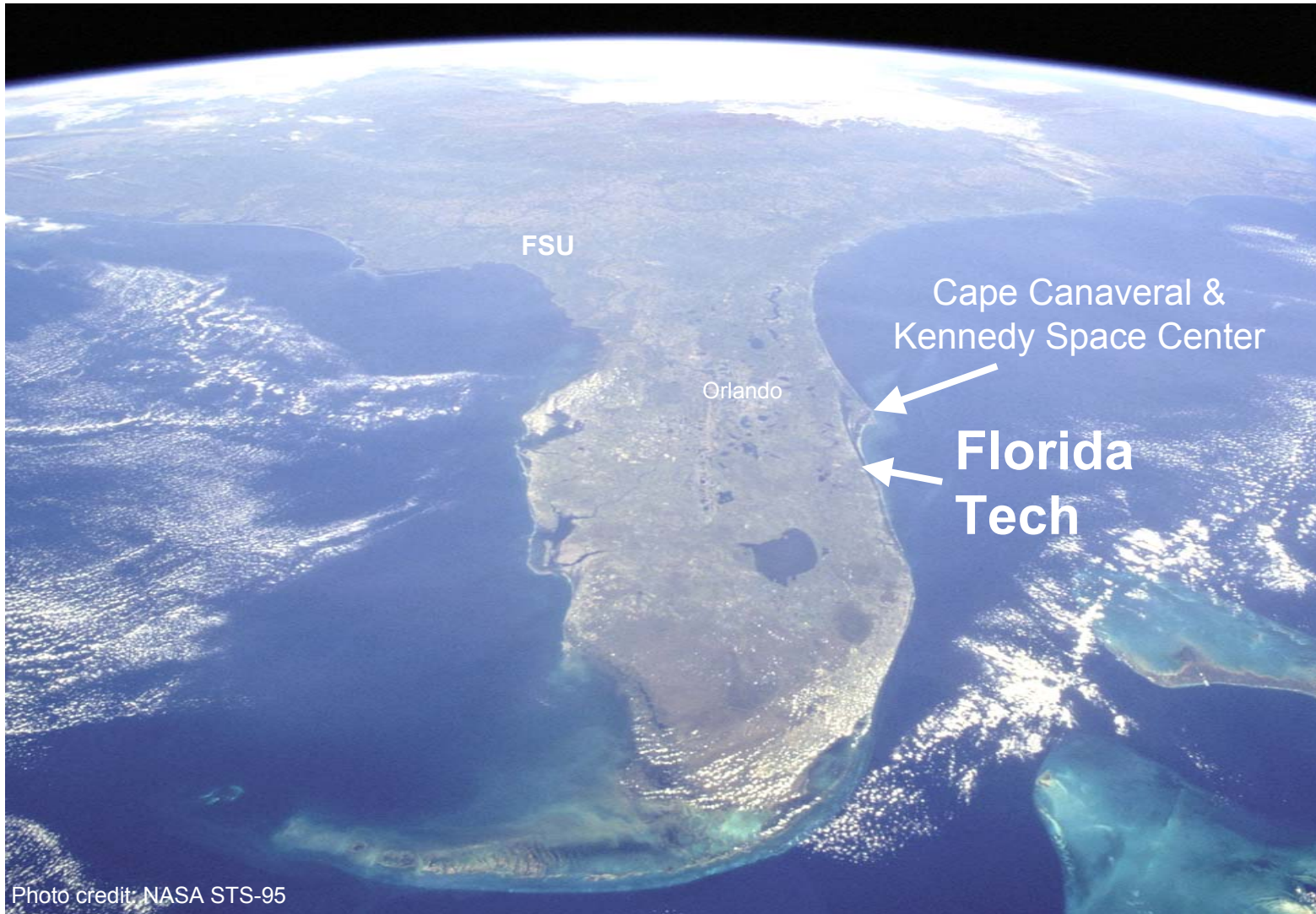
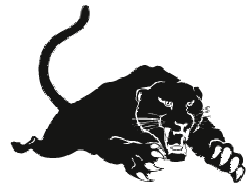
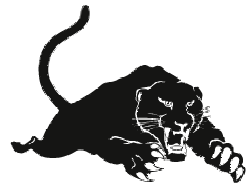


Photo credit: NASA STS-95

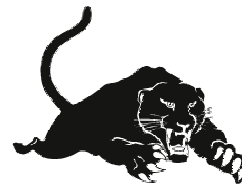
What's Florida Tech ?



- Small private institution (~ 4500 students)
- Technical orientation (engineering, science)
- Founded in 1958 by physicist J. Keuper for “missile men” from Cape Canaveral
- Department of Physics & Space Sciences:

Our new home (with 100' x 30' high bay)





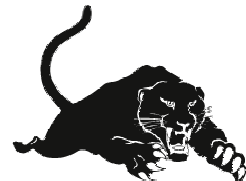
HEP program at Florida Tech started in 1999 (by L.B.)

- **Main activities:**

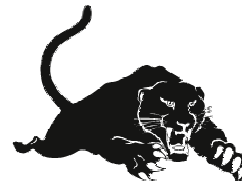
- Gaseous detector R&D (GEMs, aging simulation)
- L3 data analysis ($\gamma\gamma$ physics)
- CMS (muon alignment)
- QuarkNet outreach program (3rd year)

- **Group members:**

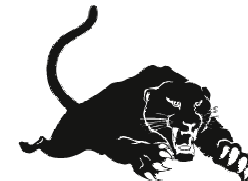
- 2 faculty
- 1 part-time engineer
- 3 grad students
- 8 undergrads



- L.B. founded Ph.D. program in HEP at Debrecen in 1996
- Peter Tarjan & Viktor Veszpremi were both grad students of L.B. at Debrecen & Florida Tech
- Gyongyi Baksay from Debrecen (MS) working on Ph.D. (L3 data analysis) at Fl. Tech with M.H.



- LB:
 - Honeycomb cells (with Rubbia & Telegdi)
 - Double sense-wire current division drift chamber
 - Muon drift chamber for MAC exp.
 - TPC tracking inside a Cerenkov counter
 - High pressure gas detectors up to 500 bar (H_2)
- MH:
 - HERA-B Honeycomb Outer Tracker
 - CDF shower-max. strip chambers in ECAL
 - H1 forward tracker
 - (CMS Muon Endcap)
- Klaus Dehmelt (grad student):
 - Assembly & test of GEM detectors for COMPASS experiment at CERN (with F. Sauli's group)



International Workshop on AGING PHENOMENA IN GASEOUS DETECTORS

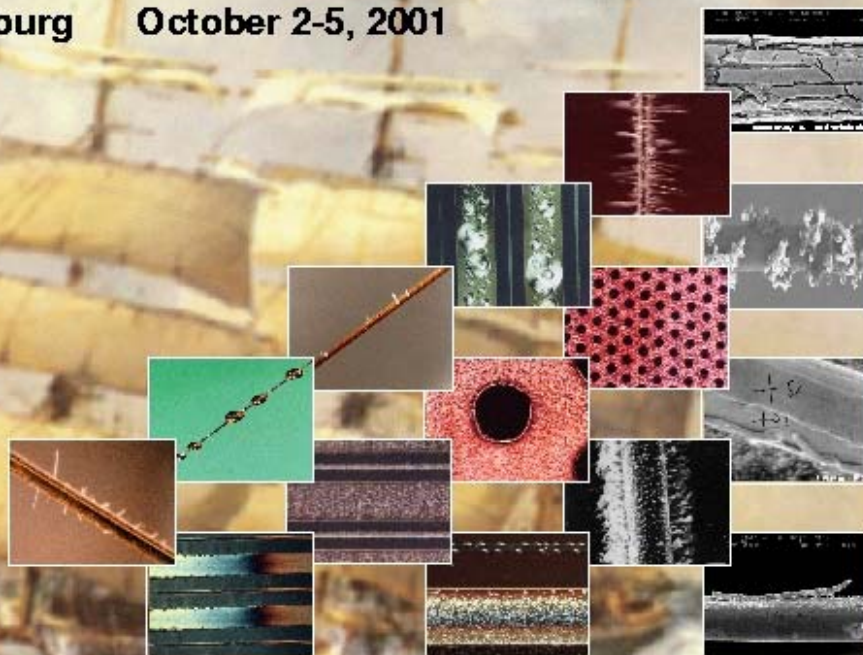
DESY, Hamburg October 2-5, 2001

Topics will include:

- Coping with classical aging problems
- New aging effects
- Models and new insights from plasma chemistry
- Materials: Lessons for detectors and gas systems
- Experiences with large detector systems
- Recommendations for future detectors

Deadline for registration: August 1, 2001

Deadline for submission of abstracts: June 29, 2001



Proceedings to be published in Nuclear Instruments and Methods A

International Advisory Committee

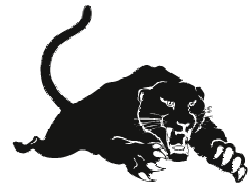
- | | |
|------------------------------|---------------------|
| M. Danilov (ITEP Moscow) | V. Peekov (Lund) |
| B. Dolgoshein (MEPHI Moscow) | F. Sauli (CERN) |
| D. Froidevaux (CERN) | I. Shipsey (Purdue) |
| J. Kadyk (LBL) | J. Va'vra (SLAC) |
| P. Krizan (Ljubljana) | A. Wagner (DESY) |

Local Organizing Committee

- M. Hohlmann (chair, DESY)
 C. Padilla (DESY)
 N. Tesch (DESY)
 M. Titov (ITEP Moscow)
 I. Kerkhoff, R. Matthes (secretaries)

Registration, Contact & Info

Register and submit abstracts online at
<http://www.desy.de/agingworkshop>
 Contact: aging_workshop@desy.de
 Tel.: +49 40 8998-4800
 FAX: +49 40 8998-4900



Nuclear Science Symposium
Medical Imaging Conference
13th International Workshop on Room-Temperature
Semiconductor X- and Gamma-Ray Detectors
Symposium on Nuclear Power Systems



October 19-25, 2003 • Doubletree Hotel -- Hayden Complex • Portland, Oregon, U.S.A.

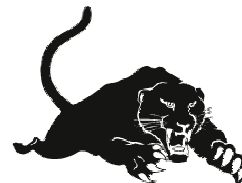
Detector Aging Workshop

[Submit an Abstract](#) [Sign up for this Workshop](#)

High Energy Physics experiments are currently entering a new era which requires the operation of gaseous particle detectors at unprecedented high rates and integrated particle fluxes. Full functionality of such detectors over the lifetime of an experiment in a harsh radiation environment is of prime concern to the involved experimenters. The goal of the workshop is to provide a forum for interested experimentalists to review the progress in understanding of aging effects and to exchange recent experiences.

For more information, contact:

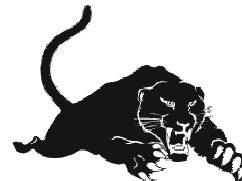
[Maxim Titov](#) (Freiburg) and [Marcus Hohlmann](#) (Florida Institute of Technology)



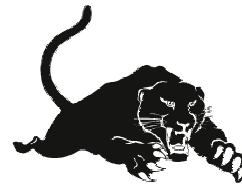
- Strong interest in next generation of gaseous tracking detectors:

TPCs with GEM readout

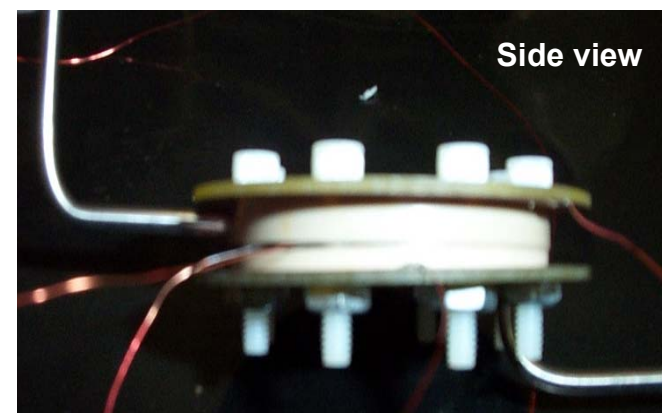
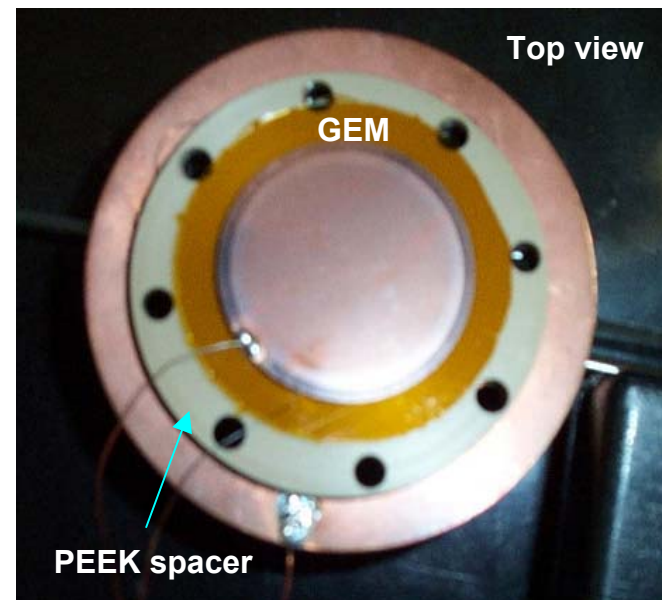
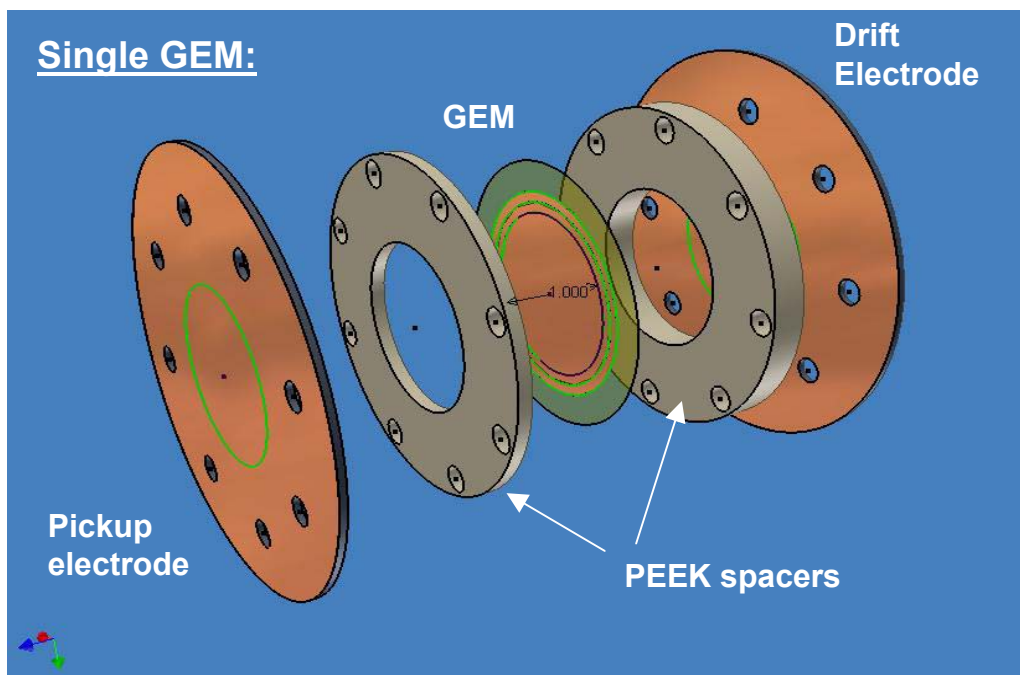
- PHENIX TPC will be first fast detector of this type in a heavy-ion or pp experiment → unique
- Would like to focus on the R&D for the TPC
- Gain experience for Linear Collider TPC

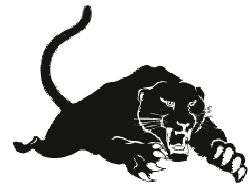


- Help with designing GEM TPC in detail:
 - gas choice
 - validation of proposed materials for construction
 - aging tests at Fl. Tech
 - performance measurements
- Beam tests of TPC prototypes (summer)
- Analysis of test beam data at Fl. Tech
- Simulation (?)
- Possibly production of TPC component down the road

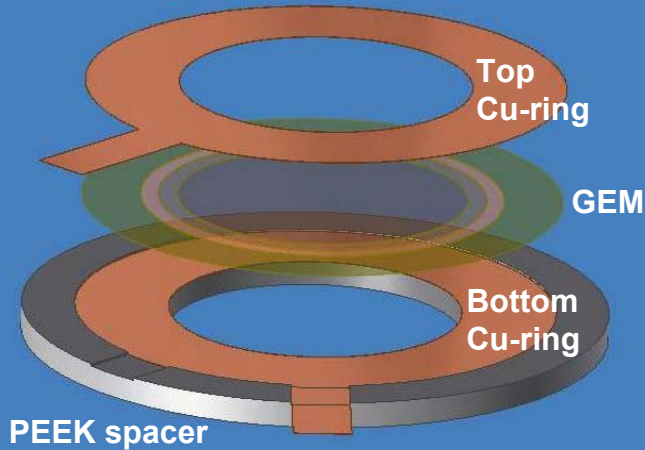


Design and construction of 1" single-GEM detector

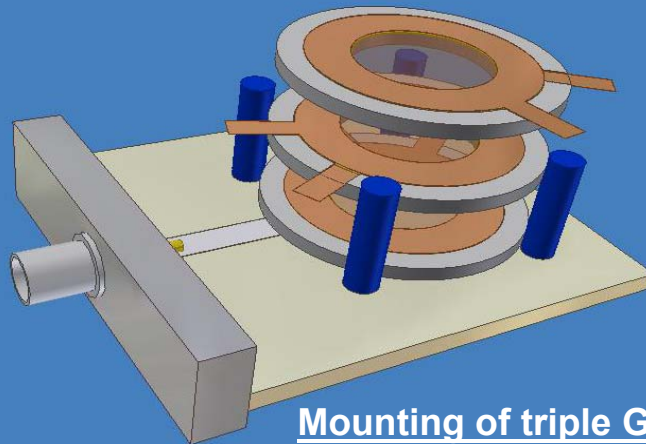
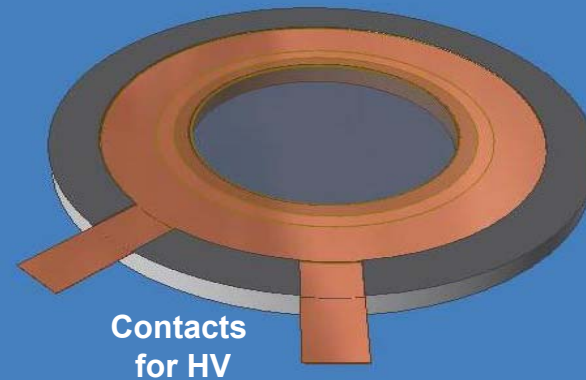




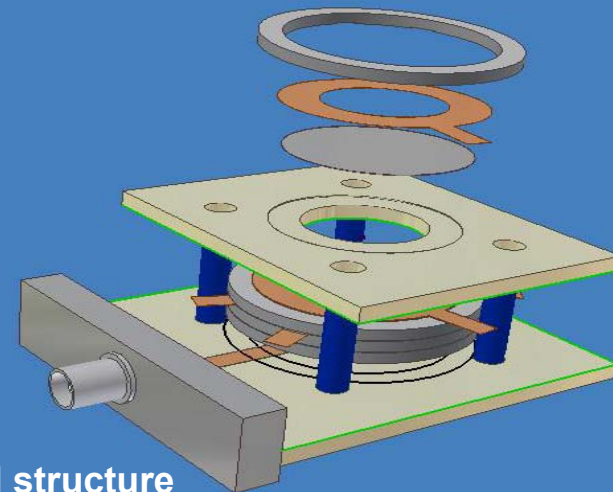
exploded view of single GEM layer



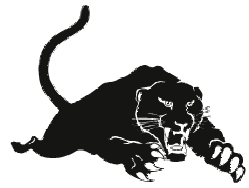
assembled single GEM layer



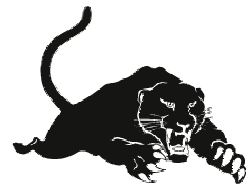
Mounting of triple GEM structure



Design: Lee Caraway (Fl. Tech)



- previously Fl. Tech student Viktor Veszpremi worked with Gabor David on EMCaI calibrations & π^0 analysis at BNL
- Possibly station graduate student at BNL for TPC work in the future
- Bring up undergrads in summer for help with test beams etc.
- We love taking shifts... 😊



- Florida Tech can bring expertise and some manpower to the GEM-TPC project
- The group is excited about helping to build the first fast GEM-TPC in the world

**We are looking forward to
becoming your collaborators !!**