

# Report to the Coll

Wolfgang Lohmann, BTU, DESY and RWTH

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# Linear $e^+e^-$ Collider

## Currently discussions to prepare the European Strategy

In Germany several workshops happened. A summary was given beginning of May. Major statements (not for public yet)

- Full exploitation of the LHC (including HL LHC)
- Full support for BELLEII
- An  $e^+e^-$  collider with at least 500 GeV is of highest priority in the future

Future may be ILC or CLIC

We should be prepared for both projects

# Circular $e^+e^-$ collider

There are new circular collider projects coming up:

- CEPC Project in China
- FCC at CERN

I think these are long term future projects, funding initiatives?

Questions we may ask:

- Which are the requirements there?
- Are there interesting technological developments?
- Can we use synergies ?
- Will new people join us?

# Possible engagement at LHC

Luminosity, beam optimisation, radiation monitoring will play an important role at HL-LHC

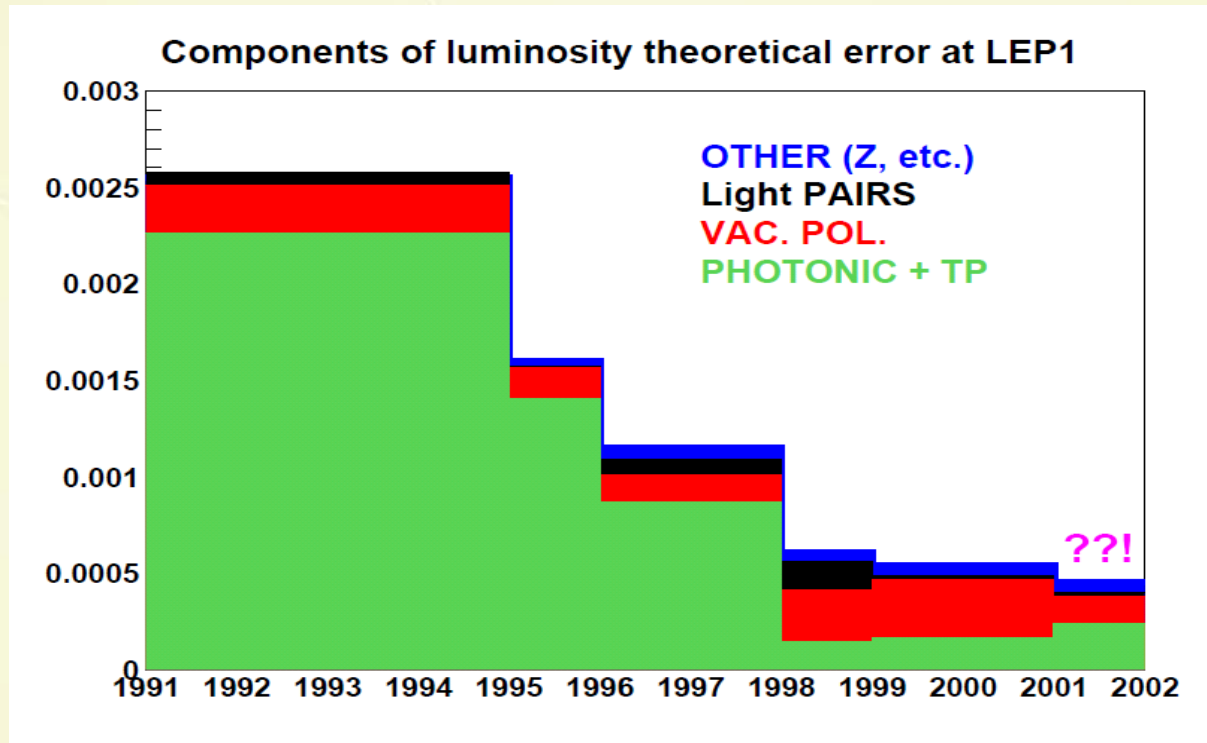
- Systems should be independent on power/readout of the detectors
- On-line bunch-by-bunch luminosity with high precision in short time slots
- At least two independent luminosity systems per experiment

Technologies we developed may be applied for these purpose. For students it might be interesting to appply the acquired expertise in a running experiment.

It should not seriously hamper FCAL

# Bhabha Scattering

Theory uncertainties in the Bhabha cross section at LEP1 (S. JADACH, FCAL workshop Cracow 2006):



There is a lack of MC generators optimized for higher energies. Activities e.g. in JINR and University of Minsk may be interesting for us for application

# FCAL specific issues

## Major Topic: detector prototype for beam tests (2019/20)

- Sensors (available, but to be qualified)
- Absorber planes (available, but need mechanical integration)
- Detector plane (technology under development)
- ASICs (to be produced)
- DAQ with FPGA in preparation
- Laser alignment?

Test-beam: since CERN is not providing test-beam in 2019/20 it might be difficult to get beam-time at DESY.



# FCAL specific issues

- Publications
  - Presence on conferences was very good.
  - Future topics?
  - One publication in „The European Physical Journal C“
    - New paper on irradiation studies
- Never finished topics
  - Calibration and alignment with muons (MC to be done)
  - CLIC timing, FE, readout, background → impact on performance
  - BeamCal/LumiCal performce in the new ILD software

## Measurement of shower development and its Molière radius with a four-plane LumiCal test set-up

H. Abramowicz<sup>1</sup>, A. Abusleme<sup>2</sup>, K. Afanaciev<sup>3</sup>, Y. Benhammou<sup>1</sup>, L. Bortko<sup>4,b</sup>, O. Borysov<sup>1</sup>, M. Borysova<sup>1,c</sup>, I. Bozovic-Jelisavcic<sup>5</sup>, G. Chelkov<sup>6</sup>, W. Daniluk<sup>7</sup>, D. Dannheim<sup>8</sup>, K. Elsener<sup>8</sup>, M. Firlej<sup>9</sup>, E. Firtu<sup>10</sup>, T. Fiutowski<sup>9</sup>, V. Ghenescu<sup>10</sup>, M. Gostkin<sup>6</sup>, M. Hempel<sup>4,b</sup>, H. Henschel<sup>4</sup>, M. Idzik<sup>9</sup>, A. Ignatenko<sup>3,d</sup>, A. Ishikawa<sup>11</sup>, S. Kananov<sup>1</sup>, O. Karacheban<sup>4,b</sup>, W. Klemp<sup>8</sup>, S. Kotov<sup>6</sup>, J. Kotula<sup>8</sup>, D. Kozhevnikov<sup>6</sup>, V. Kruchonok<sup>6</sup>, B. Krupa<sup>7</sup>, Sz. Kulis<sup>8</sup>, W. Lange<sup>4</sup>, J. Leonard<sup>4</sup>, T. Lesiak<sup>7</sup>, A. Levy<sup>1,a</sup>, I. Levy<sup>1</sup>, W. Lohmann<sup>4,b</sup>, S. Lukic<sup>5</sup>, J. Moron<sup>9</sup>, A. Moszczyński<sup>7</sup>, A. T. Neagu<sup>10</sup>, F.-X. Nuiy<sup>8</sup>, M. Pandurovic<sup>5</sup>, B. Pawlik<sup>7</sup>, T. Preda<sup>10</sup>, O. Rosenblatt<sup>1</sup>, A. Sailer<sup>8</sup>, B. Schumm<sup>12</sup>, S. Schuwalow<sup>4,e</sup>, I. Smiljanic<sup>5</sup>, P. Smolyanskiy<sup>6</sup>, K. Swientek<sup>9</sup>, P. Terlecki<sup>9</sup>, U. I. Uggerhoj<sup>13</sup>, T. N. Wistisen<sup>13</sup>, T. Wojton<sup>7</sup>, H. Yamamoto<sup>11</sup>, L. Zawiejski<sup>7</sup>, I. S. Zgura<sup>10</sup>, A. Zhemchugov<sup>6</sup>

# FCAL funding

- Europe
  - National funding Agencies
  - AIDA 2020 (2020)
  - current JINR-BMBF program ends 2017, new application written, pending
- Chile
  - Angel got a grant
- US ???
- Japan, application not successful

Particularly difficult in some eastern Europe institutions,  
People fro Kiev did not reply

What we do after AIDA 2020 ?????



# Tribute to Leszek



Future of FCAL in IFJ PAN ??

May 10, 2018

Cracow\_2018