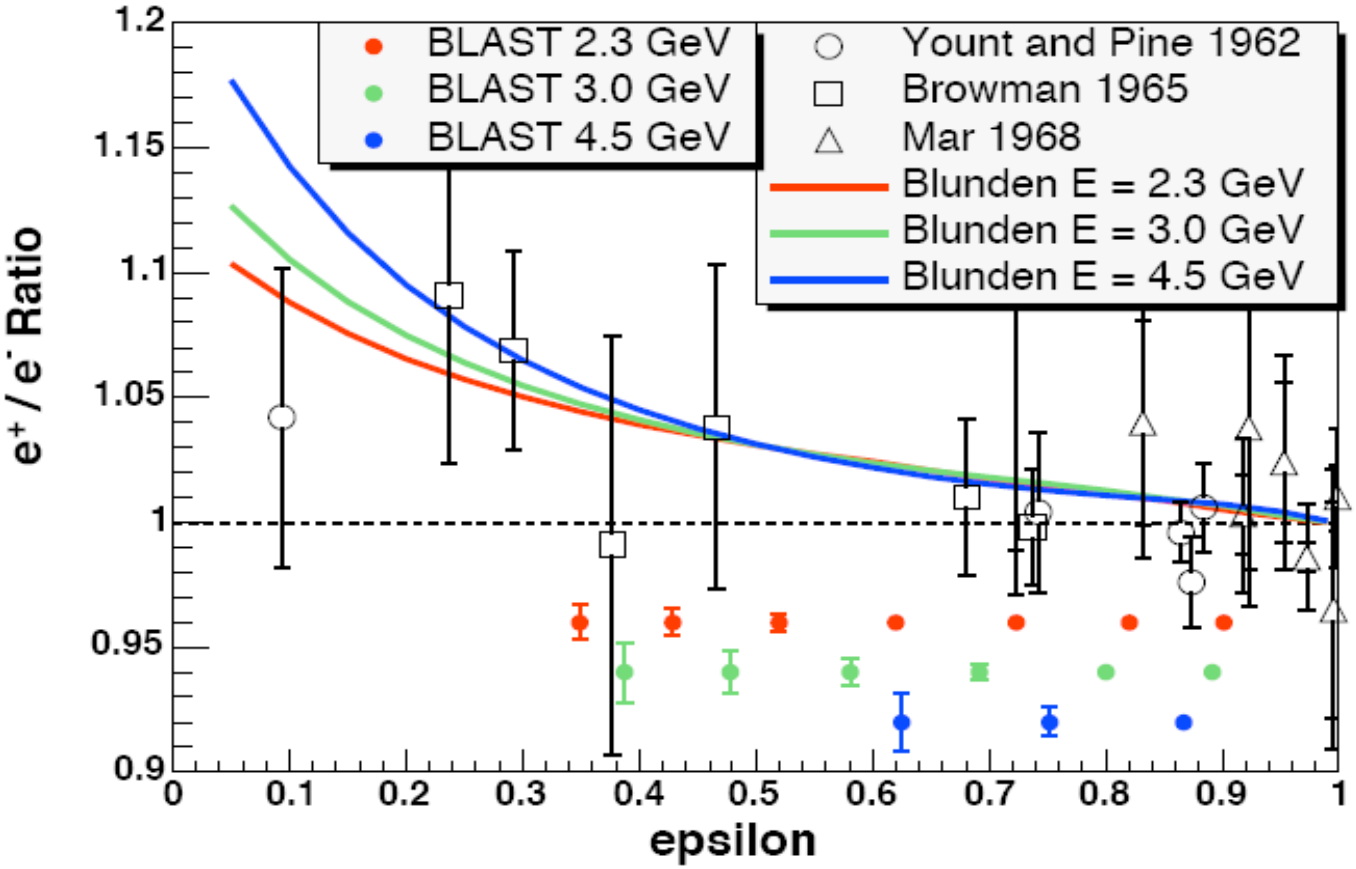
Projected results for OLYMPUS



1000 hours each for e+ and e- assuming two (of eight) sectors instrumented and

Lumi = 2 x 10^{33} cm^{-2} s^{-1} – 100 mA on 3 x 10^{15} cm^{-2}

E_0 [GeV]	θ_e	$p_{e'}$ [GeV/c]	θ_p	p_p [GeV/c]	Q^2 [(GeV/c)^2]	ϵ	Counts
4.5	**24**	**3.18**	**39.1**	**4.01**	**2.5**	**0.867**	**437082**
	32	**2.60**	**31.0**	**3.41**	**3.6**	**0.751**	**60093**
	40	**2.12**	**25.4**	**2.91**	**4.5**	**0.625**	**14427**
	48	1.74	21.2	2.51	5.2	0.505	4986
	56	1.44	18.0	2.19	5.7	0.402	2195
	64	1.22	15.5	1.94	6.2	0.318	1138
	72	1.04	13.5	1.74	6.5	0.250	662
3.0	**24**	**2.35**	**48.3**	**3.15**	**1.2**	**0.892**	**5594080**
	32	**2.02**	**39.7**	**2.80**	**1.8**	**0.800**	**860732**
	40	**1.72**	**33.2**	**2.48**	**2.4**	**0.691**	**207325**
	48	**1.46**	**28.2**	**2.20**	**2.9**	**0.581**	**69017**
	56	**1.24**	**24.2**	**1.97**	**3.3**	**0.477**	**28964**
	64	1.07	20.9	1.78	3.6	0.387	14356
	72	0.93	18.2	1.62	3.9	0.311	8029
2.3	**24**	**1.90**	**53.7**	**2.68**	**0.8**	**0.901**	**23563000**
	32	**1.68**	**45.3**	**2.44**	**1.2**	**0.820**	**4158760**
	40	**1.46**	**38.5**	**2.21**	**1.6**	**0.723**	**1056590**
	48	**1.27**	**33.1**	**2.00**	**1.9**	**0.620**	**355293**
	56	**1.10**	**28.6**	**1.81**	**2.2**	**0.519**	**147671**
	64	**0.97**	**24.9**	**1.66**	**2.5**	**0.428**	**71950**
	72	0.85	21.8	1.53	2.7	0.348	39498

Table 1.4: Kinematics for three beam energies and count estimate per 8° bin for 1000 h at $2 \cdot 10^{33}$ / (cm^{2}s). For the higher beam energy the backward lepton angle acceptance is limited by the forward proton angle $> 23°$. Bold face corresponds to kinematics within the acceptance of the current BLAST detector configuration.

Following yesterday's discussions…

- Maximize running in parallel with light source operation
  - how thick can the OLYMPUS internal target be?
  - can we lower the operating energy?
  - can we find an opportunity for OLYMPUS data taking with a thick target?
  - how often can the lepton sign be changed?
- OLYMPUS commissioning should be done completely in this mode => no power charges
- If lepton sign can be changed, perhaps even significant data on multiple photon contribution can be taken in parallel running
- Dedicated OLYMPUS data taking would take place at lower energy DORIS operation, e.g. ~ 2 GeV => lower power costs ~ 150 k€/month. Total bill ~ 600 k€.

A PROPOSAL TO DEFINITIVELY DETERMINE THE CONTRIBUTION OF MULTIPLE PHOTON EXCHANGE IN ELASTIC LEPTON-NUCLEON SCATTERING

THE OLYMPUS COLLABORATION

June 23, 2008

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Arizona State University, USA
DESY, Hamburg, Germany
Hampton University, USA
INFN, Ferrara, Italy
INFN, Frascati, Italy
INFN, Rome, Italy
Massachusetts Institute of Technology, USA
St. Petersburg Nuclear Physics Institute, Russia
Universität Bonn, Germany
University of Colorado, USA
Universität Erlangen-Nürnberg, Germany
University of Glasgow, United Kingdom
University of Kentucky, USA
Universität Mainz, Germany
University of New Hampshire, USA

Proposal finalization

- Finalize experiment design
- Finalize responsibilities
- Monte Carlo simulations
  - energy resolution
  - efficiency correlation
  - target position
  - systematic uncertainties
- Run plan optimization
- Writing of outstanding sections
- Suggest meeting at MIT-Bates associated with Gordon conference in Tilton, NH August 10-15
- `Final' proposal draft distribution: September 2nd
- Proposal submission to DESY: September 15th

3.2 Institutional Responsibilities

Arizona State University:
DESY: Installation
Hampton University: Luminosity monitor
INFN, Ferrara: Target
INFN, Frascati:
INFN, Rome:
MIT: BLAST spectrometer and detectors, target, simulations
St. Petersburg Nuclear Physics Institute:
Universität Bonn:
University of Colorado:
Universität Erlangen-Nürnberg: Target
University of Glasgow:
University of Kentucky: Simulations
Universität Mainz:
University of New Hampshire: Timing scintillators