8: UHELS, University of Helsinki

People involved:

Nils Törnqvist (scientist-in-charge)

Anthony Green

Dan-Olof Riska

Mikko Sainio

Jonna Koponen (Ph.D. student)

Timo Lähde (Ph.D. student)

Pekko Piirola (Ph.D. student)

Post doc:

13 months from the Network

11 months from the Academy of Finland

24 months altogether

Total of about 58 person-months/year

Nils Törnqvist

- Lightest scalar mesons;
composition, role and interpretation
- The meson team of PDG (2004 edition)
- “Mesons beyond the naive quark model”, a review with Claude Amsler for Physics Reports including a discussion of the theoretical expectations and models, the data, the molecular candidates, scalars, deuteronlike candidates, glueballs and hybrids

Tony Green

(together with Jonna Koponen)

in connection with the UKQCD collaboration (C. Michael);

The measurement, fitting and interpretation of the charge and matter radial distributions of heavy-light mesons calculated on a lattice with dynamical fermions.

Dan-Olof Riska

(together with Timo Lähde)

1) Radiative and hadronic decays of heavy-light mesons and baryon resonances

2) Calculation of the coupling of strange vector mesons to baryon resonances below 1800 MeV using realistic quark model wavefunctions

Mikko Sainio

(together with Pekko Piirola)

πN partial wave analysis:

• new data since the previous comprehensive analysis

• quantities of fundamental importance; f^2, $\sigma_{\pi N}$

• ChPT; LEC's

• problems: $m_u \neq m_d$ effects and em. corrections