Rolf's Report on Simulating the DIRC in PravdaMC

- Current organisation of the code (warning: Alphabet soup ahead!) :
- PacDircModel returns PacDircResponse from PacSimTrack or PacSimHit.
- PacDircResponse contains per-photon list of Cherenkov angles (polar only, for the moment) relative to *true* track, smeared by per-photon error. Per-photon error is calculated from achromaticity plus geometry term of 4 mrad.
- PacReconstructTrk class tests whether PacSimHits are within DIRC volume. If so, a PacDircResponse object is generated, and stored in PacDircMaps.
- PacDircMaps contains std::map from PacSimTrack* and from TrkRecoTrk* to PacDircResponse.
- PmcOpReco creates BtaCandidates using a PmcMicroAdapter to create the BtaPidQual object.
- PmcMicroAdapter uses a PacDircReconstructor object, whose interface is thus:

```
PacDircReconstructor::void reconstructRing (BtaPidQual* _pidQual,
                                             const BtaCandidate* cand) const;
```

  The PacDircReconstructor looks up the PacDircResponse of the underlying TrkRecoTrk, calculates the mean and RMS/$\sqrt{n}$ Cherenkov angle, and returns those as the reconstructed Cherenkov angle and error. No account is taken of the tracking error and its correlation with Cherenkov azimuthal angles.

Rolf's PravdaMC TODO List

- **For the end of June, in rough order of priority:**
  - Merge my local PacTrk and PravdaMC packages with the SVN repository.
  - Make PacDircReconstructor use the tracking error.
  - Account for gaps between DIRC bars.
  - The end is in sight? Or at least the alpha deployment.
- **For the end of July:**
  - add Cherenkov azimuthal angles to PacDircResponse.
  - account for Cherenkov azimuthal angles and reconstructed track angle in PacDircReconstructor.
- **Longer Term:**
  - add a simulation of the CDR base option
  - add a simulation of the focusing DIRC option