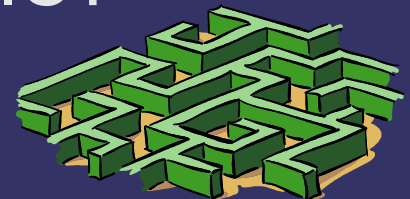


# *CLIC / ILC collaboration*

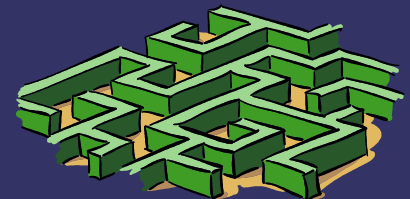
- Critical beam dynamics studies are required to be confirmed by secondary study
- Benchmarking is crucial
  - ⇒ We will be able to do little day to day work for ILC
  - ⇒ We develop our simulation code
  - ⇒ We could provide a number of the confirmation studies
  - ⇒ We would ask for confirmation of our studies
  - ⇒ Can we ask for some primary studies on CLIC?



# *Daniel dixit...*

⇒ We should distinguish between

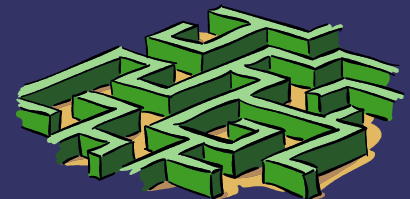
- Collaborations **within** the GDE framework
  - This is what we have done so far...
- Collaborations **out of** the GDE framework
  - ...with some exception



# *Within the GDE Framework (I)*

## *ILC Accelerator Physics R&D so far*

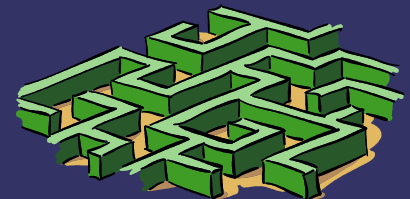
- ⇒ Several phone meetings, 1-2 per month in average
- ⇒ Several Face to face meetings:
  - January 08-11: Accelerator Physics Meeting (Daresbury)
  - May 30 - June 3: Linear Collider Workshop 2007: LCWS2007 and ILC2007 (Hamburg)
  - October 23 – 24: Accelerator Physics (Simulations), Parallel Session of GDE Meeting at FNAL
  - December 11 – 13:
    - Wake Fest 07 - ILC wakefield workshop at SLAC
    - LET Beam Dynamics Workshop at SLAC
- ⇒ Several COLSIM meetings:
  - 2 at CERN, 1 at Cockcroft



# *Within the GDE Framework (II)*

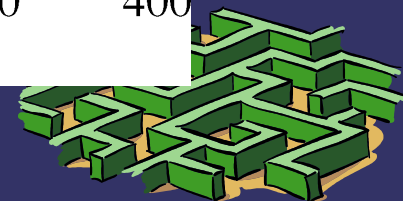
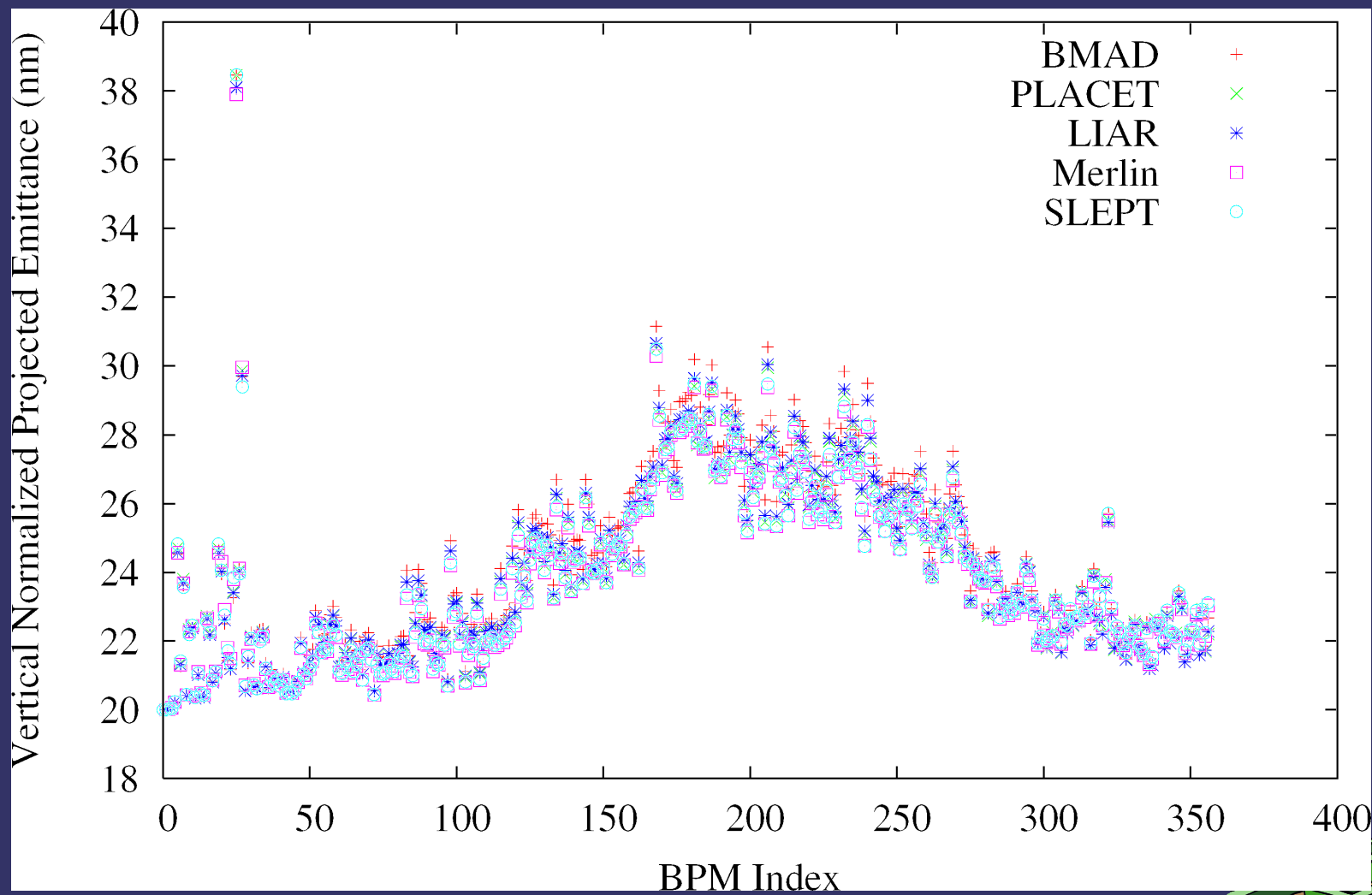
## *Successful Precedents*

- ⇒ **BC Alignment** : disagreement KEK / SLAC. A close collaboration with Kyoshi Kubo (KEK) solved the problem
- ⇒ **ML\DFS Benchmark** : Jeff Smith (Cornell Univ) benchmarked DFS's results with different tracking codes (very good agreement)



# Benchmark of DFS in the ILC ML

(Jeff Smith)



# *Outside the GDE Framework*

## *Successful Examples*

### 1) Case of Javier R.Lopez / J.A.I. Oxford:

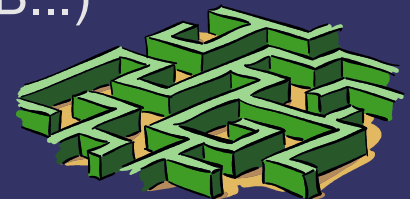
- took over Glen White's work on FB Simulations
- replaced Merlin for PLACET (and partially MatLab for Octave)
- excellent agreement with Glenn's results
- started
  - ATF2 Beam Dynamics Simulations
  - ATF2 FeedBack System Simulations
- Very good results

### 2) BDS\Collimator Wakefields :

- Adina Toader (Manchester Univ) found a factor 2 in the geometric kick

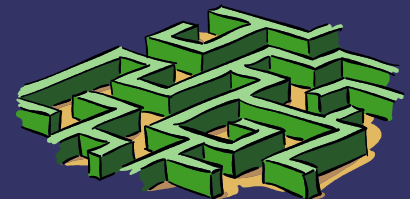
### 3) PLACET code

- catalyser of many collaborations (COLLIMATORS, CRAB...)
- ...collaborations with Cockcroft, RHUL, LAL, Turkey, ...
- significant presence at PAC07 and EPAC08



# *Potential Collaboration Subjects (I)*

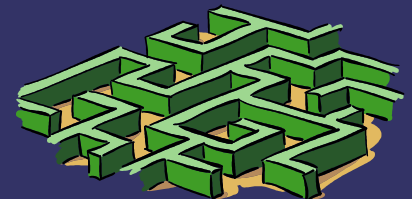
- ⇒ ATF2 Flight Simulator (PLACET)
- ⇒ Main Linac RF error model CERN for ILC / CLIC (Daniel)
- ⇒ Main Linac alignment we can complement
- ⇒ Helical undulator we can complement
- ⇒ BDS we develop our own method
- ⇒ RTML we need help



# *Potential Collaboration Subjects (II)*

Benchmarking of...

- ➔ Feedback systems
- ➔ Space charge (HEADTAIL)
- ➔ Electron cloud build-up
- ➔ Electron cloud induced emittance growth
- ➔ Common ILC/CLIC beam dynamics meetings





# *Summary and Final Remarks*

- ⇒ We develop our simulation code
- ⇒ We could provide a number of the confirmation studies
- ⇒ We would ask for confirmation of our studies
- ⇒ CERN should closely follow the study of CLIC specific topics
- ⇒ Kyoshi Kubo is not in the “*Beam dynamics & Beam Simulations including Low Emittance Transport*” working group. Why?

