

SiD Position on Push-Pull

Philip Burrows

John Adams Institute

Oxford University

On behalf of SiD

See document supplied to WWS

Assumptions

- **Having two detectors on beamline ‘permanently’, and sharing the luminosity, i.e. two IPs, is clearly the ideal solution for physics**
- **Luminosity delivery to two IPs, with fast switchover between IPs, is not possible**
- **Two detectors in push-pull mode will:**
 - **save cost of one BDS**
 - **increase likelihood of two detectors from start**
 - **provide equal access to luminosity for both detectors**

Technical Issues

- **Push-pull can probably be engineered to work**
 - **many technical issues will need to be solved**
- **Full access to offline detector is mandatory**
- **Best accomplished with self-shielding detectors**
 - **self shielding is technically feasible**
- **Mechanisms for moving detector should not reduce acceptance**
- **Need to align 'captured' beamline components independent of overall detector position**

Technical Questions

- **Can detector be engineered so magnetic field map remains invariant under detector in/out?**
- **Can tracking chamber alignment be restored without calibration runs (eg. with internal alignment system)?**
- **Can detector remain fully operable in 'out' position?**
 - **cosmic ray data-taking to maintain operability**
- **Can switchover time be made short enough?**

Sociological Issues

- **Need well defined procedure for scheduling swaps**
- **Machine luminosity must be shared equitably**
- **Period between swaps should be of order 1 month:**
 - neither detector can gain significant lumi advantage in 1 period
- **Switch-over time \ll running period**