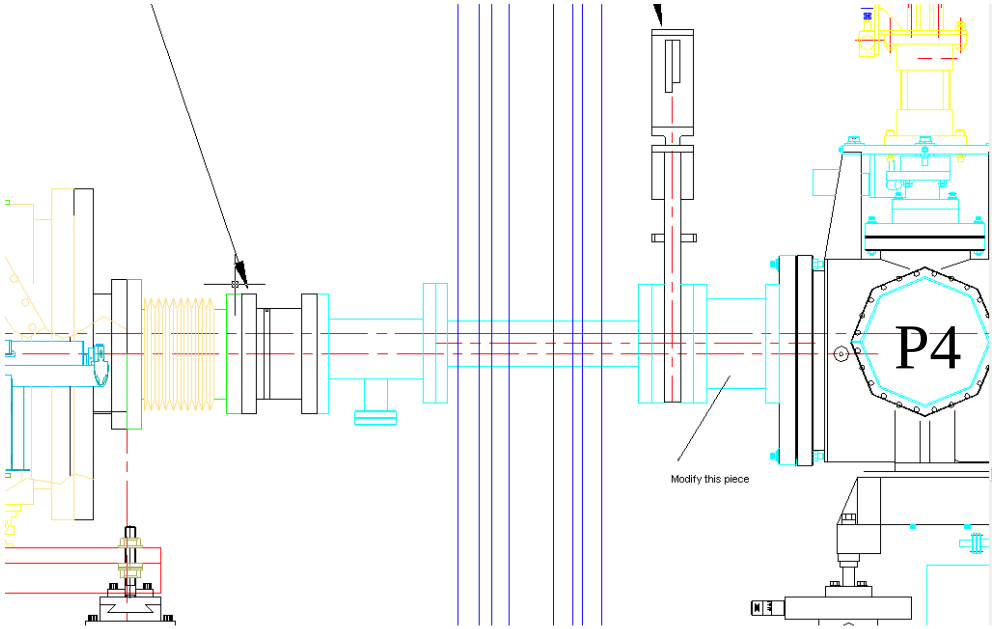
S7 operation update

Eric Dufresne, TRR group meeting, Dec. 14, 2004

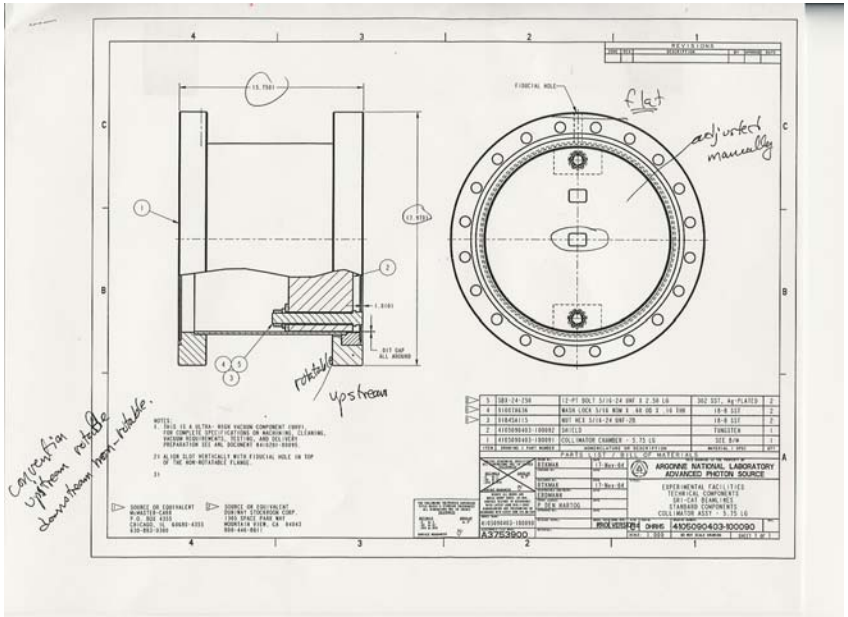
- Mark Erdmann is looking into fixing the stray radiation problem found on the P4 during the yearly radiation validation in October 2004. (more next)
- ED has nearly completed a fist draft of S7 safety plan, and comments from Jeff Alicz and collegues have been received.
- The 7ID-D atomic physics laser run from Nov. 26 to Dec. 13 was excellent. Huge technical improvements (beam stabilization PID loop, new stable laser) as well as scientific accomplishments were achieved. (see slide from EL).
- Our main staff file and mail server was rebuilt and is now operating very reliably. A new high performance linux workstation is now available for users in the corner office.
- The UofM 7BM-B KB mirror system with two 200 mm long flats was delivered and commissioned during the last 7ID-D laser run and performed very well.

Planned P4 modifications



LHS: flange downstream of P4 will be replaced with a new mask below.

RHS: new mask



Laser Update 12/14/04

1. **New laser installed in the second week of November met manufacturer's specifications**
   a. A component (output Pockels Cell) was optically damaged in the third week of November; manufacturer immediately shipped a loaner and provided assistance over the phone in fixing the problem
   b. Laser amplifier running de-rated for reliability until a warranty repair happens in January
   c. Eric L. traveling to California in January for training
   d. Separate laser enclosure and new timing electronics still required for stability
2. **Atomic Physics experiment a success!**
   a. 10+ collaborators, four weeks of setup followed by two weeks of data collection in hybrid singlet mode
   b. High quality data on x-ray spectroscopy of ions challenges existing theoretical models
   c. Developed a new method for x-ray duration measurements which scales to femtoseconds
   d. First direct localized probe of the dynamics of Coulomb Explosions
   e. EPICS PID mono stabilization by Dohn Arms allows some spectroscopy in C and D hutches
3. **X-ray Chopper is mechanically broken; lots of time and money probably required to repair**
4. **Molecular alignment LDRD funded by APS (PI: Steve Pratt, ANL/CHM)**
   a. Postdoc candidate interview second week of January
   b. Laser hardware volunteered by University of Michigan
5. **Laser Enclosure**
   a. Quotation submitted by construction company; awaiting funding decision
   b. Laser labyrinth underwent first review by configuration committee; small changes should result in approval
   c. Instrumentation proposal scheduled for 12/15/04
6. **Laser oscillator experiments planned for 324 bunch mode this week**
7. **Prototype APS APD undergoing testing by Steve Ross this week at S7**
8. **Single-shot x-ray photodiode measurements: see technical note at** http://www.mhatt.aps.anl.gov/research/publications/reports/