

Vacuum group meeting 5/5/14  
10 AM Garage  
Alex, Lucy, Ron, Linda

Alex spoke to SAES getters rep Paolo Manini at OLAV about possible use of NEG in particle free systems.  
Showed presentation from him: not ready to publish results - early report. DO NOT distribute/reference to anyone else.  
Particle tests done at DESY.  
Also one from OLAV website.

<https://www.nsrcc.org.tw/OLAV-IV/HtmlPresentationFiles.html>  
<https://www.nsrcc.org.tw/OLAV-IV/Files/PresentationFiles/S072.pdf>

pump cleaned with dry ionized N2 in clean room (class IS05).  
after 15 min of cleaning, number of particles strongly reduced (class IS04).  
then conditioning done.  
peak drops quickly after activation.  
after three cycles, strongly reduced number of particles. after four cycles, numbers are inseparable from the detector noise.  
SAES claims the NEG pumps can be properly conditioned for use in particle-free areas.

How do particles get out of system?

Getter material is combination of 3 materials. ST 707, Zr, Ti.

How long until must activate again for 10e-8 system?  
Depends on gas composition.  
Estimate on the order of once per year.  
Are additional particles released when gases are released at next activation?  
Does the material degrade in any way from sitting for a year, in a high rad area?

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Vacuum group guidelines - not much progress this month. Nothing new, but Lucy combined it all. How to keep people writing, and how to review document?

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Corrosion in MI - discussion of what Alex presented at OLAV.  
<https://www.nsrcc.org.tw/OLAV-IV/Files/PresentationFiles/S041.pdf>  
LHC has also seen some corrosion on gaskets.  
Alex went through his presentation briefly.  
Noted peak at 64. Possibly NO2 + water molecule.  
Still looking for explanations to remaining questions.  
NO2 possibly created if pump running at high pressure with leak (undetected).  
No active pumping for up to a year. Data log problems.

Alex showed test diagram on chalk board to look for corrosion.  
Use large power supply with 30 L/s pump.  
Cross with IG/PG across from IP. Variable leak on cross, then connected through orifice (1/8", 1 L/s) to rest of system. RGA, roughing valve, and turbo/roughing pumps on other side of orifice.  
Goal is to get 10e-6 to -7 Torr on other side, 10e-4 to -5 on side with leak.  
S - silver plated gasket.  
Cu - regular gasket.  
See photo of chalk diagram.

Can an RGA be added to the MI in this area in the upcoming shutdown to see if pressure is as good as the pumps say it is? No IG's.

Consider adding BeCu spring in the test system to be sure all conditions duplicated.

Beam tubes were not ultrasonically cleaned for MI installation (do to have 20 ft tanks). Not baked. Possibly swabbed with alcohol at best. Pressed to elliptical shape here.  
This region had been reworked for collimators - possibly had ultrasonic cleaning for that (short pieces).

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MSD Vacuum website - Sergei has asked Ron to update it. Ron showed us the work in progress.

Sergei wants there to be "clean room" and "cleaning" listed under "services" on new AD website.

Should we consider adding "vacuum certification" to services? We don't truly have the people to support this, but it might highlight the problem and perhaps will allow some people to get reassigned as permanent vacuum support (rather than being matrixed to other projects and also supporting general vacuum inefficiently).

What about using LDRD funds to make vacuum training videos using VMS?  
Some podcasts already on vacuum website, but not "professionally" done. These could be starting points to show VMS, get their help making them polished and more clear.

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Reminder: meeting with Gamma 5/15 at 9 AM in NML Skybox.  
Next vacuum group general meeting 6/2/14, 10 AM Garage.  
Reminder to keep working on vacuum document assignments from March meeting.