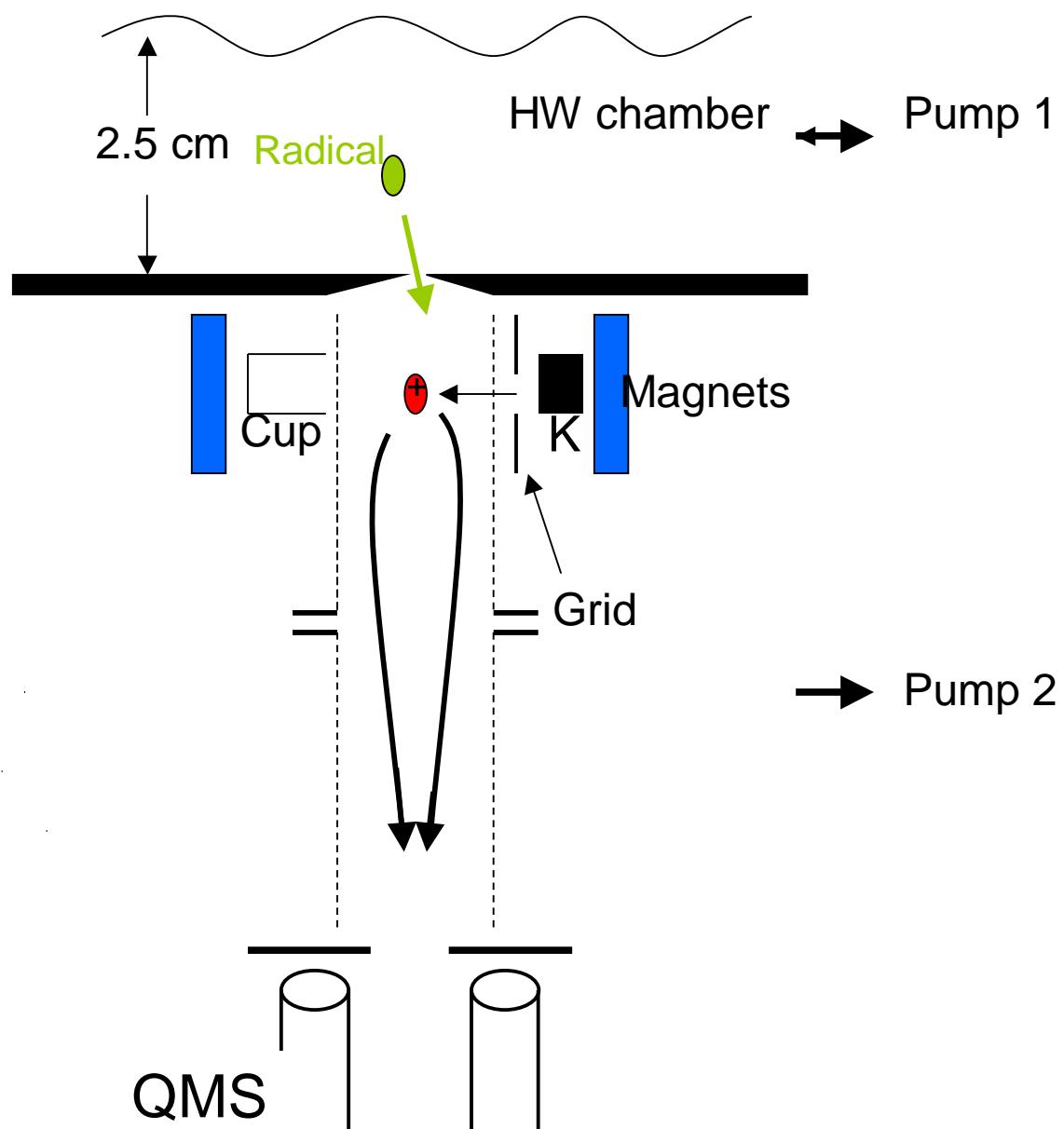
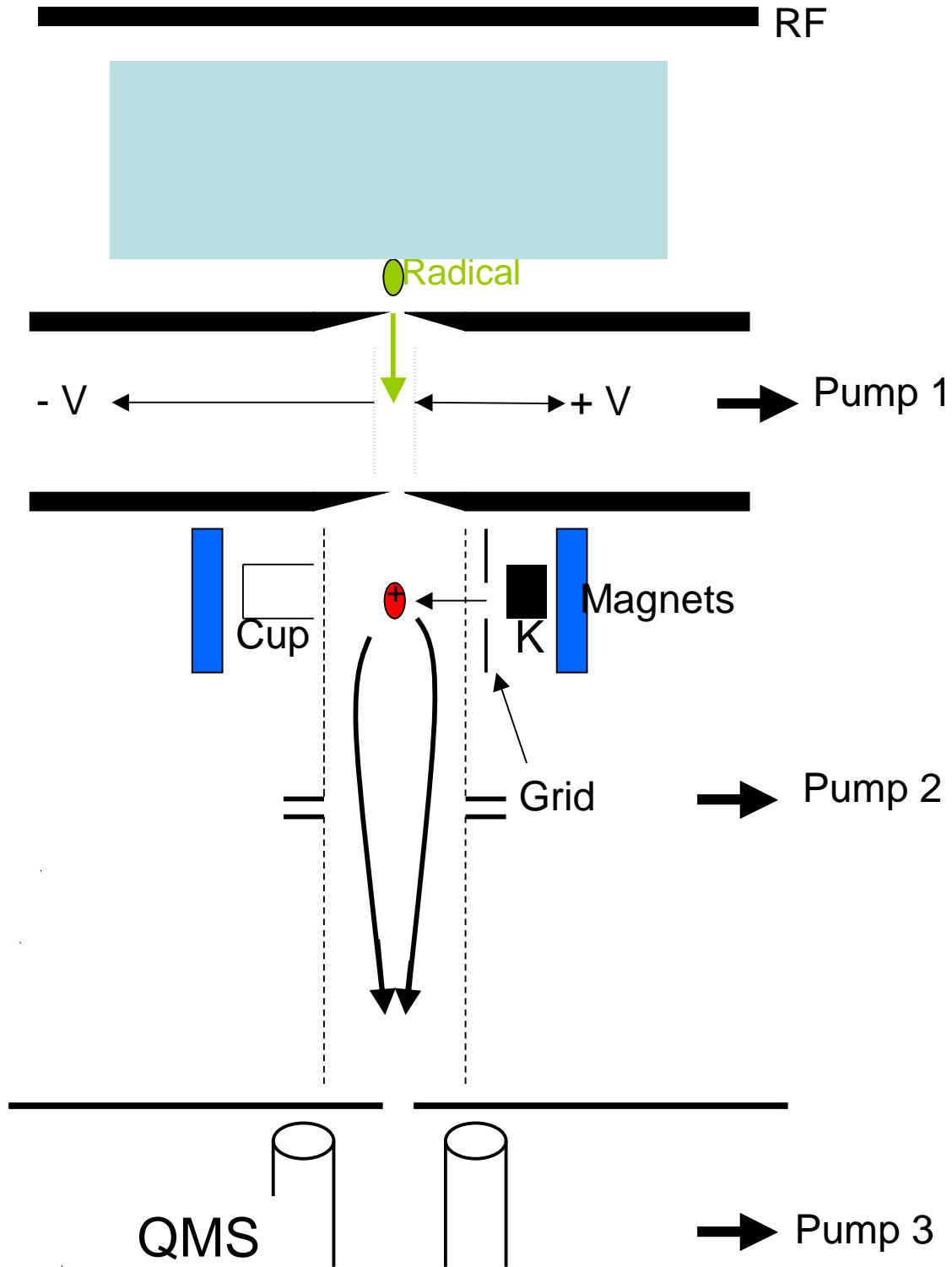


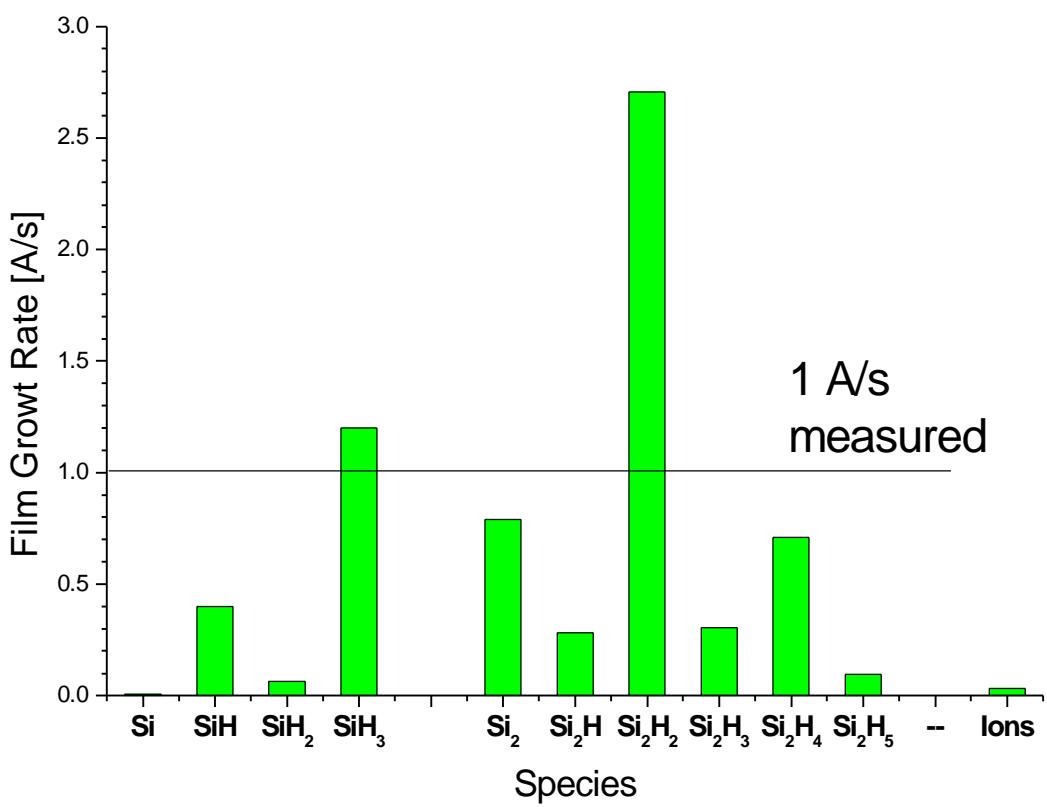
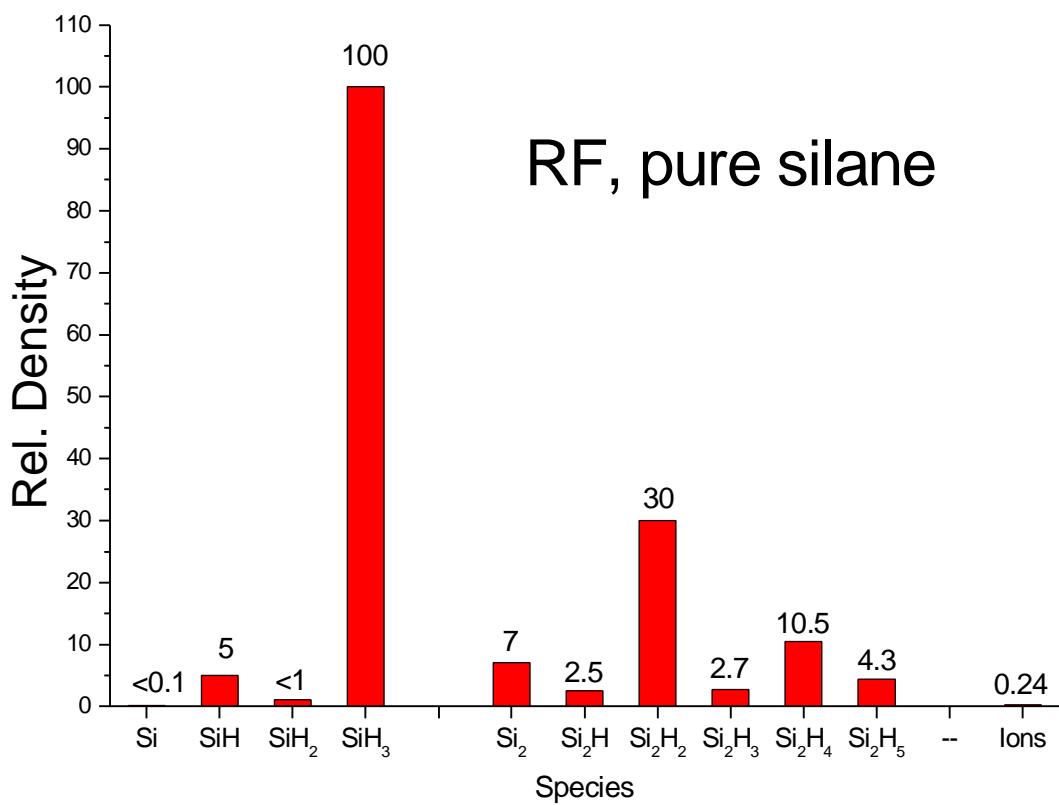
Radicals producing HW and RF discharge deposition

Wengang Zheng, Peter Horvath, & Alan
Gallagher, JILA, U of CO & NIST

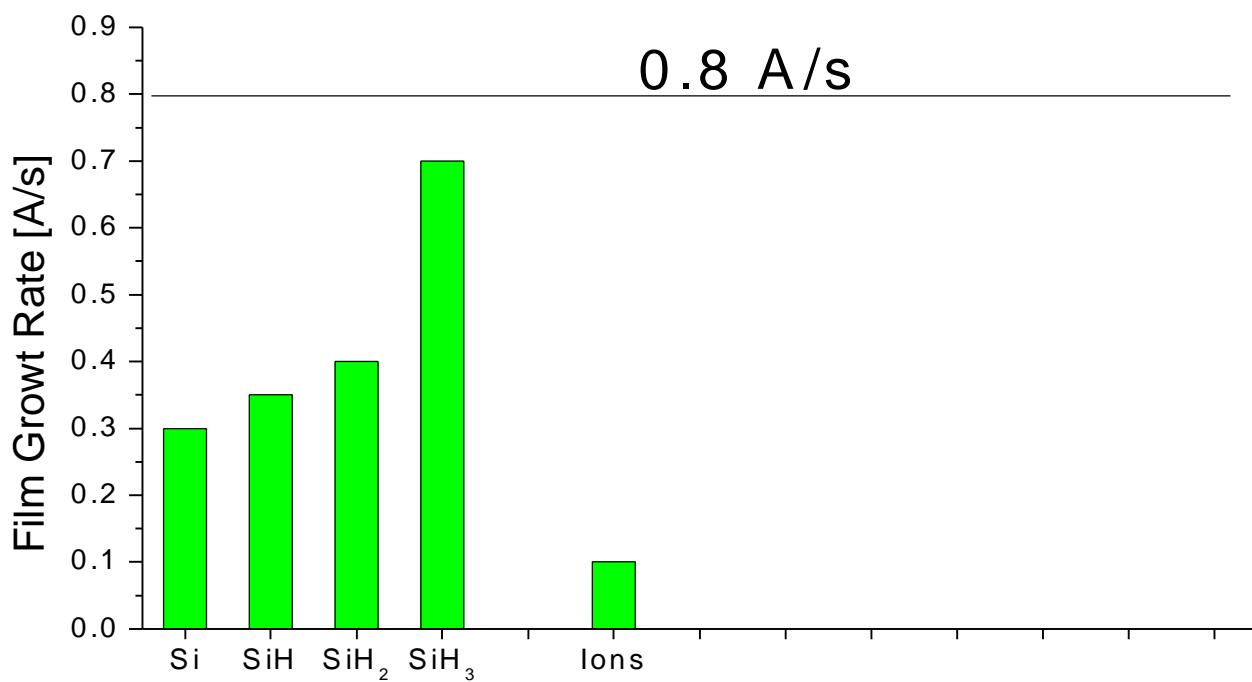
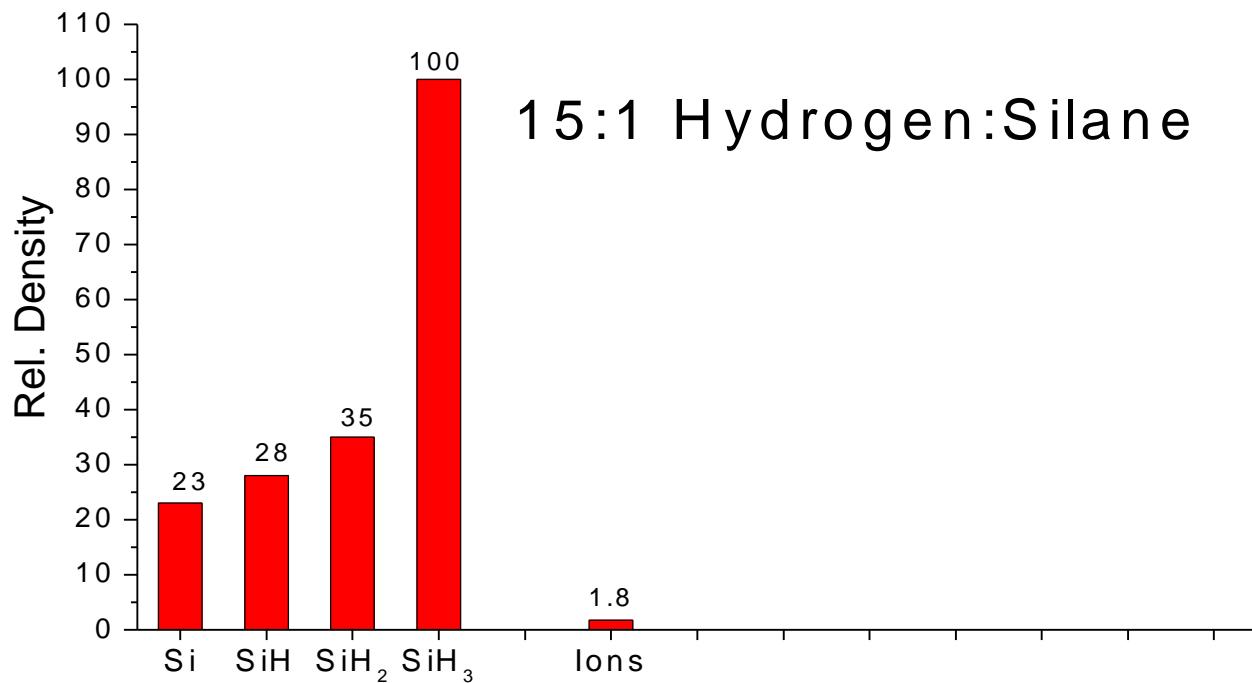
Radicals at the substrate, detected by
threshold-ionization mass spectroscopy.

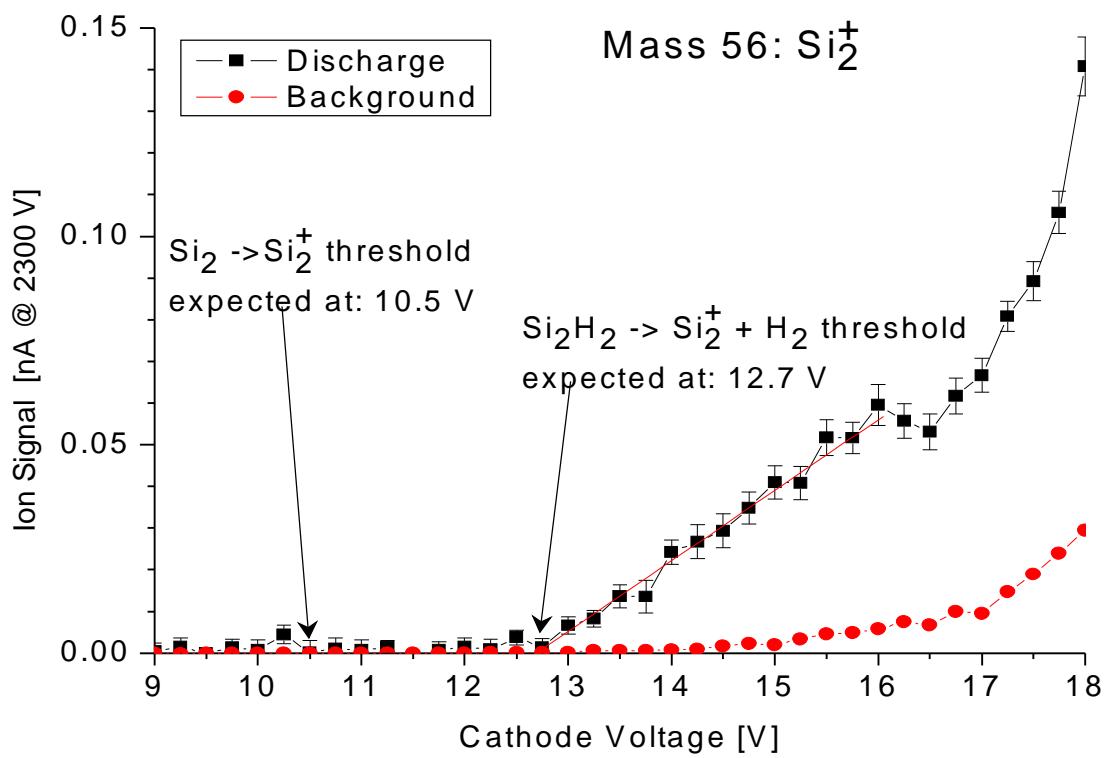
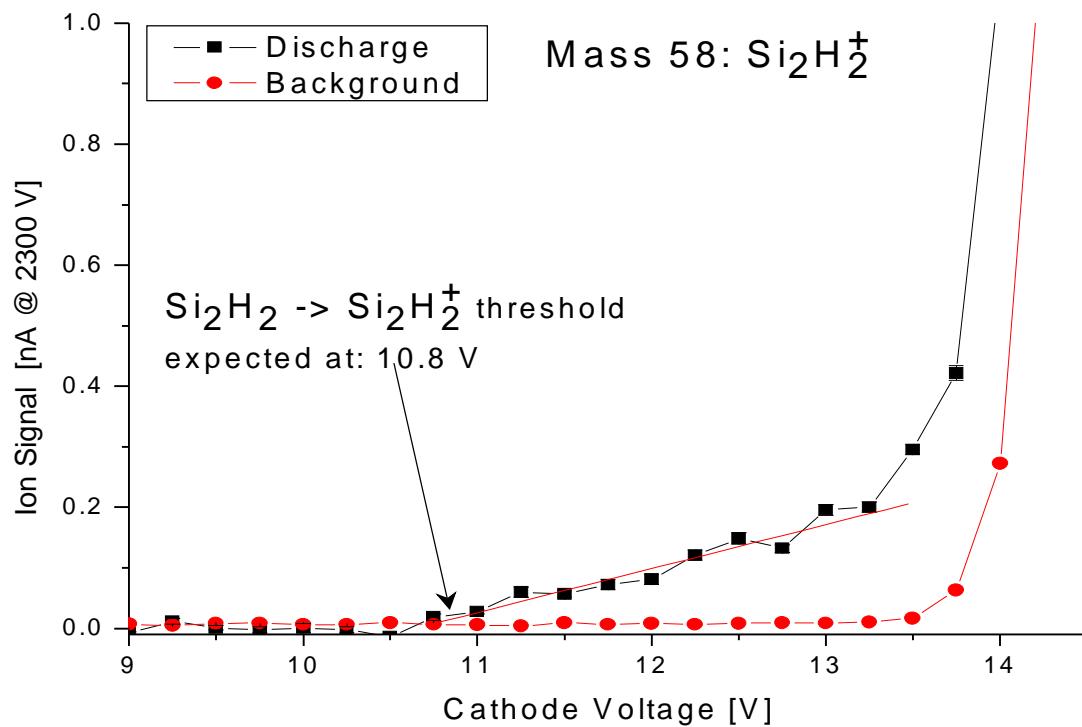




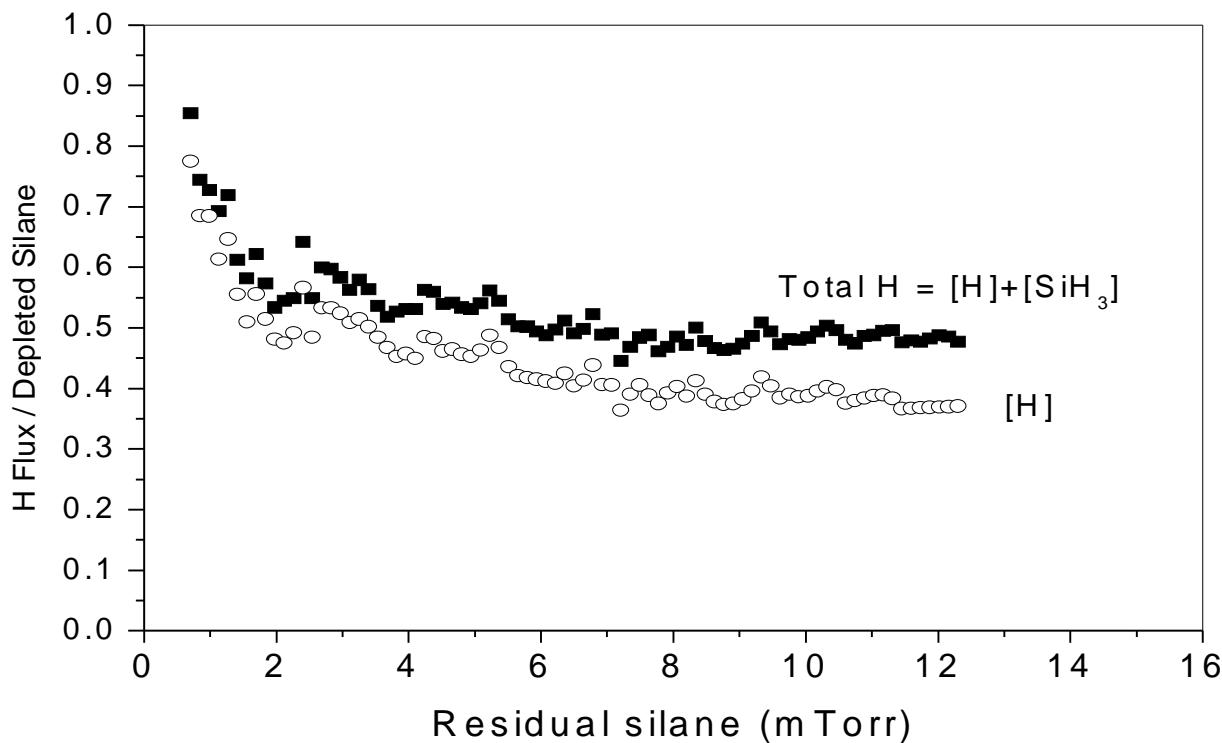
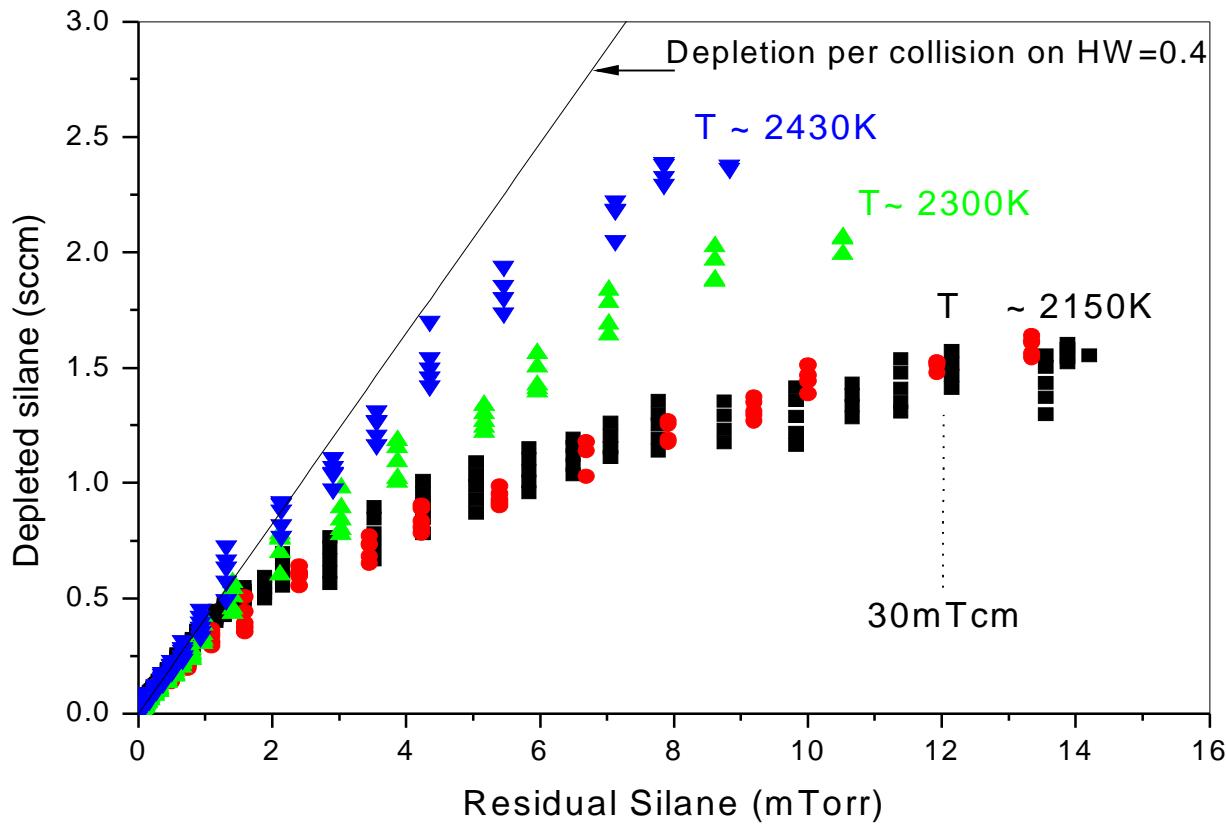


RF, 1.5 Torr, 300 K, 2.5 cm

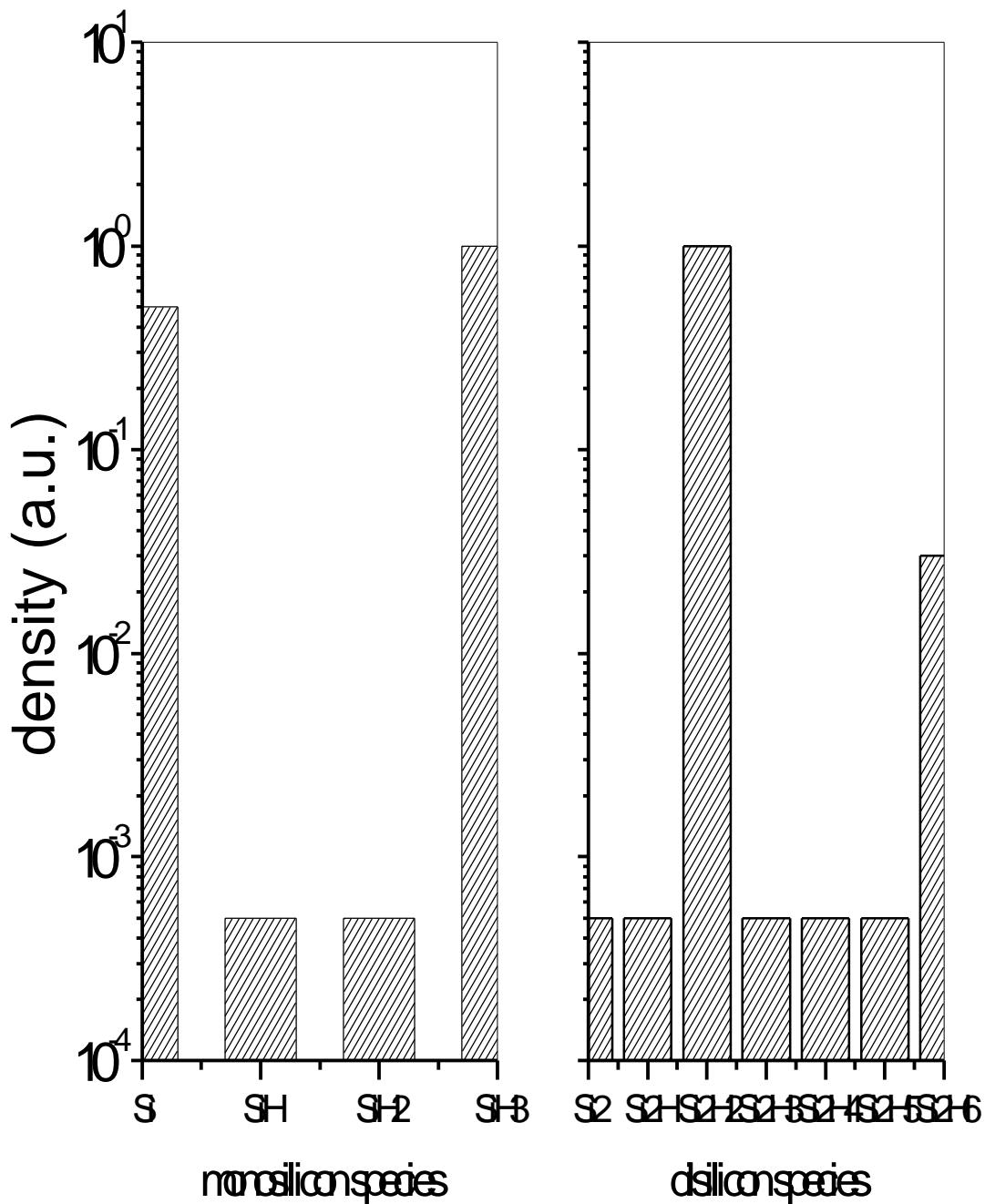




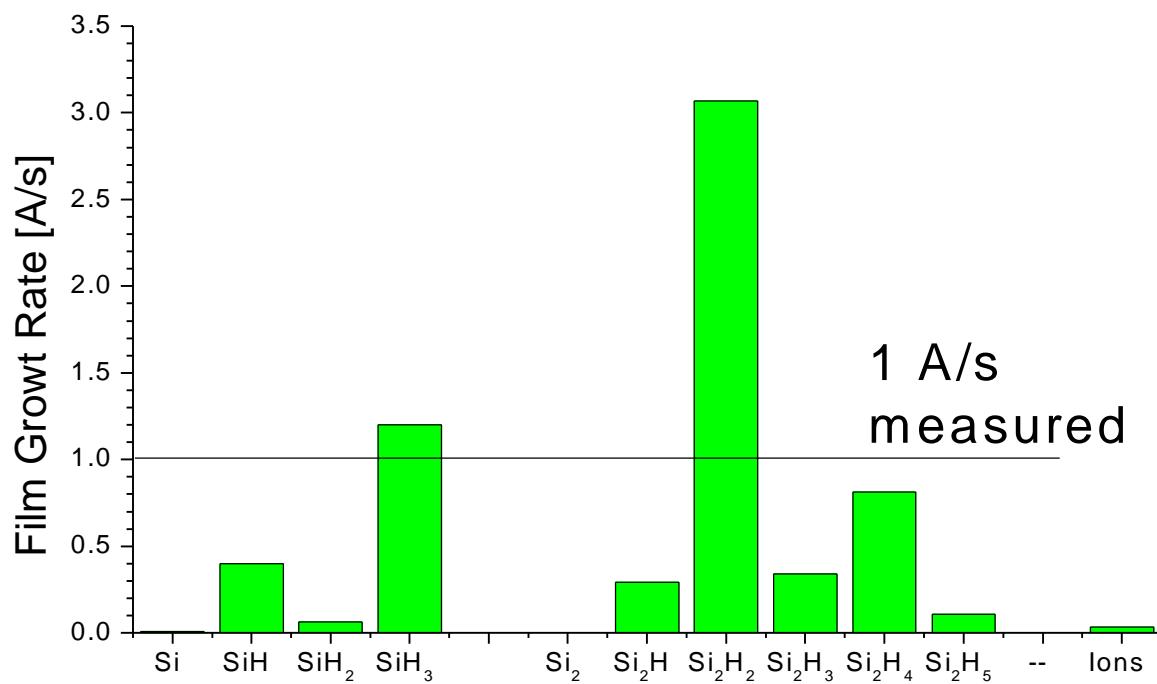
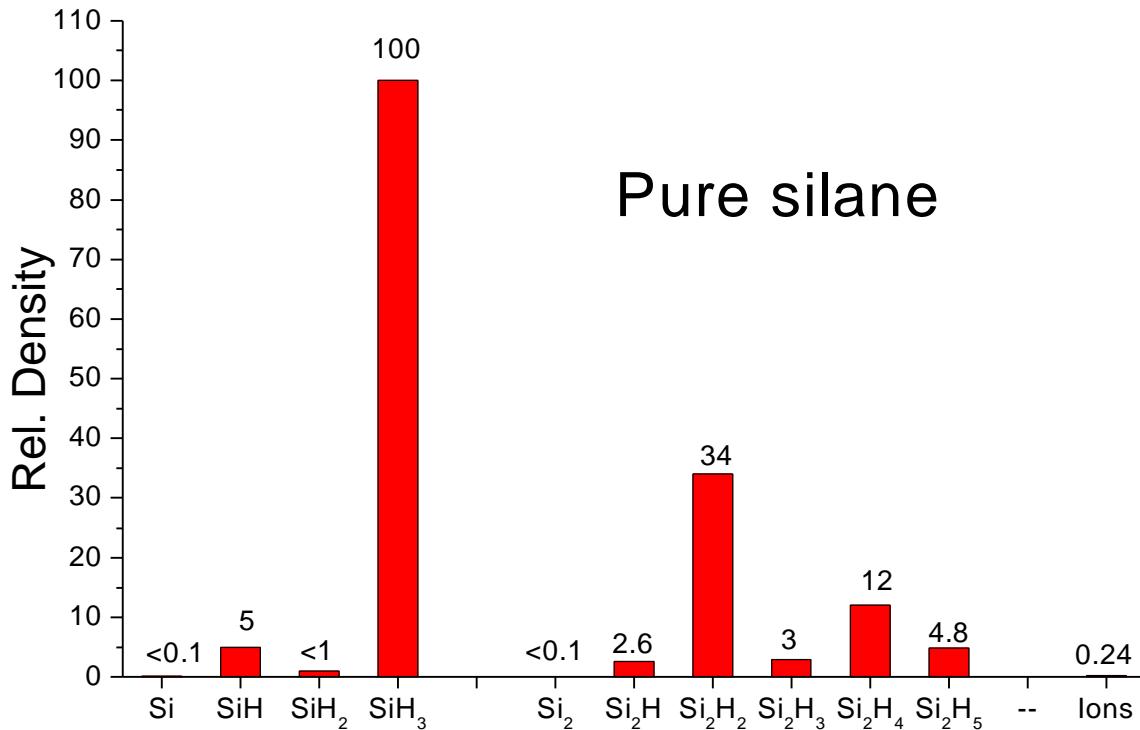
Tungsten HW



Hotwire (W), 10 mTorr SiH₄



RF, 0.3 Torr, 2.5 cm, 300 K



CONCLUSIONS

Si_2H_2 is major: most of HW deposition
& large fraction of pure SiH_4 RF dep.

SiH_3 is significant, but not dominant in HW or RF.

The loss of the HW optimum involves a relatively small Si or Si_3H_n fraction.

Lots of different SiH_n occur with H_2 dilution in RF. (Need Si_2H_n data.)

Ions a small fraction, but important ?

SO FAR, NO SIMPLE EXPLANATIONS !