Questions for SNR X-ray/Radio Research

1. Can we find *direct* evidence for the acceleration of *ions* in supernova remnants?

2. Can we observe and quantify evidence for *shock modification* (i.e., broadening of the transition region, various precursors, increased compression ratio) by, presumably, a large energy density in relativistic ions? (NB: We need better theory to document all the ways in which these nonlinear shock modifications might affect the *thermal* emission from shocks.)

3. How common is X-ray synchrotron emission in SNRs? How can we be sure to distinguish it from nonthermal bremsstrahlung (above a few keV where the presence of lines is the discriminant)? What range of rolloff frequency is implied? Which kinds of remnants?

4. How often is synchrotron emission (radio or X-ray) associated with *reverse* shocks? Do reverse shocks normally, occasionally, or almost never accelerate particles?

5. Ejecta emission is proving to be surprisingly long-lasting in LMC SNRs. Can we identify locations of reverse shocks in those objects more readily? How?

6. Does magnetic-field amplification take place in SNRs? What drives it? What does it depend on?

7. Where are the shells around the Crab and 3C 58? Can SNRs commonly fail to produce detectable shells? If so, what effect does this have on SNR statistics?

8. Is there evidence for alternative (non-diffusive-shock-acceleration) particle acceleration mechanisms in SNRs? Fermi II (stochastic)? Plasma-wave mechanisms? Reconnection? How about the injection problem?

9. Can we do a better job connecting observed SNRs with progenitor types and mechanisms in detail (e.g., masses of core-collapse progenitors? Mechanisms for Ia's?)