ISSUES IN SC ACCELERATION

- **Standard**: 1.3Ghz 25 MV/m, Q ~ 10^10
  (→ 30 MV soon) "300k$/m"*

- **Two Challenges = C(F)**
  - Performance
  - Economics

- "Low f" 200–400 MHz want > 15 MV/m
  - Performance issues dominate today
    - Q-slope < 6 MV/m - fundamental for sputtered N4

  \[ \begin{align*}
  \text{Tech. Issues} & \left\{ \\
  & \times \text{sputtering process (e.g., r.f., sputter, IEC 350)} \\
  & \times \text{mechanical structure} \\
  & \times \text{Coupling} \\
  & \times \text{shell manufacturing}
  \end{align*} \]
• "High f" 800-1600 MHz
  - Economics mainly
  - RF Design
  - Cryo Design
  - WFR Methods

• Program begins at "Low f"
  - Performance limits
    - Spudder technique
    - Pre spudder prep.
    - Post spudder treatment