# Setting Up the 2D Spectral Window

- Resolution is Limited in Both Dimensions, but Especially in $F_1$ (Indirect) Dimension
  - 1D FID has 16,384 or 32,768 Data Points
  - $F_2$ FID of 2D Spectrum has 512 to 2048 Points
  - $F_1$ FID of 2D Spectrum has 128 to 750 Points
- "Wasted Space" in Spectral Window Must Be Eliminated
  - Include Only Peaks from Your Compound
  - $^{1}H$ Spectrum: Cut Out TMS and $CHCl_3$
  - $^{13}C$ Spectrum: Cut Out Quaternary Carbons for HSQC
- Spectral Window is Narrowed in $F_1$ and $F_2$
- Bruker Parameters For Setting Up Spectral Window:
  - **sw**($F_2$), **sw**($F_1$): Spectral Width in ppm
  - **o1p**: Center of Window in ppm ($F_2$)
  - **o2p** or **o1p**: Center of Window in ppm ($F_1$)
  - For Heteronuclear 2D: $F_1$ corresponds to **o2p**
- Example: $^{1}H$: 1.0 to 6.0 ppm; $^{13}C$: 20 to 140 ppm

  **sw**($F_2$): 5.0 ppm **o1p**: 3.5 ppm

  **sw**($F_1$): 120 ppm **o2p**: 80 ppm