Transconductors

\[ \frac{1}{R} v_{in} \]

Source degeneration
Buffered

\[ v_{in} \text{ large.} \]
must be LINEAR

\[ g_m \]
\[ i_{out} = g_m v_{in} \]

poly resistor

MOST in triode region ("programmable gm")
Best for fully differential
Transconductors

constant \( I_D \)
in buffer MOS

Non-linearity reduction cancellation
Transconductors III

Nonlinearity cancellation

\[ i_1 - i_2 = 2\mu C_{ox} \frac{W}{L} V_B V_i \]