$f = 2, m_f = 0$
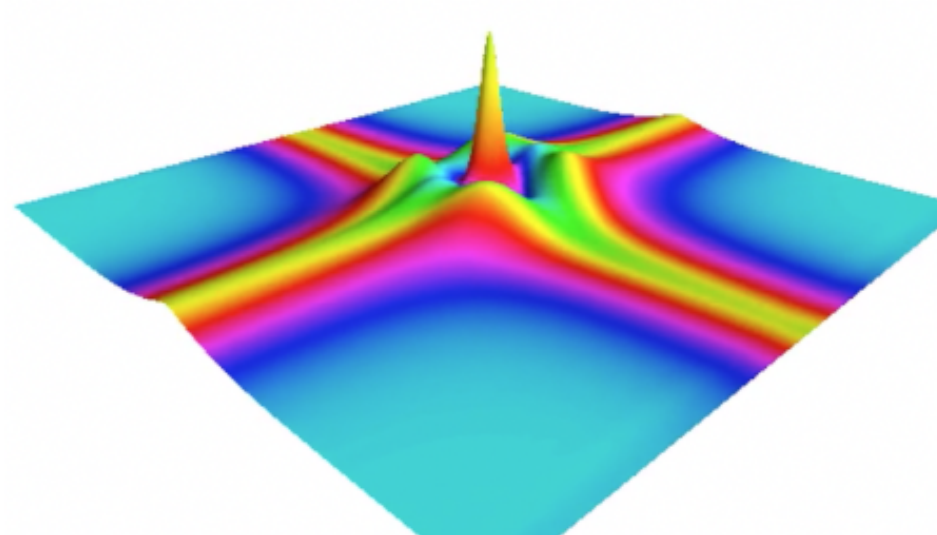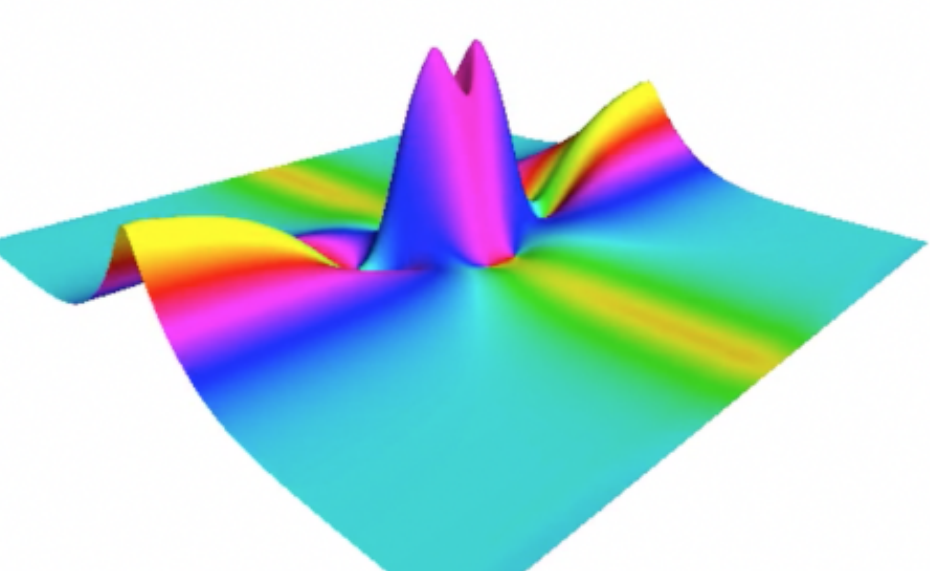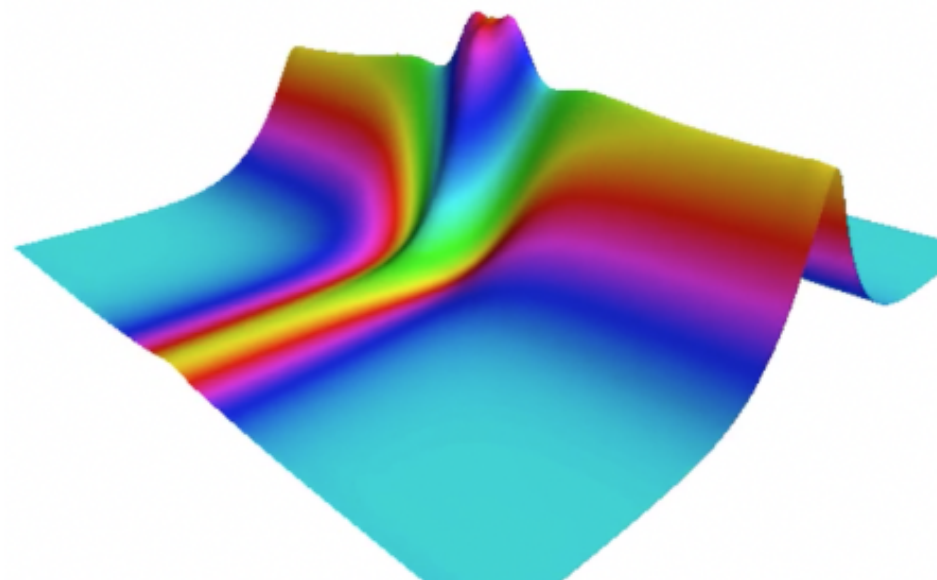
$f = 2, m_f = 1$

$f = 2, m_f = -2$

$f = 2, m_f = 2$