

Photon field

Atom

Dressed states

$$\begin{array}{c}
 \vdots \\
 \text{---} \quad |N+1\rangle \\
 \text{---} \quad |N\rangle \\
 \text{---} \quad |N-1\rangle \\
 \vdots
 \end{array}
 +
 \begin{array}{c}
 \text{---} \quad |2\rangle \\
 \text{---} \quad |1\rangle
 \end{array}
 =
 \begin{array}{c}
 \vdots \\
 \text{---} \quad |2, N\rangle \\
 \text{---} \quad |1, N+1\rangle \\
 \\
 \text{---} \quad |2, N-1\rangle \\
 \text{---} \quad |1, N\rangle \\
 \vdots
 \end{array}$$