Some matrices

MATH390

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These matrices all have irreducible characteristic polynomials modulo 3 and thus should work well as encoding keys.

$$\begin{pmatrix} 2 & 0 & 2 \\ 2 & 2 & 1 \\ 1 & 2 & 1 \end{pmatrix} \qquad \begin{pmatrix} 2 & 1 & 2 \\ 2 & 2 & 0 \\ 0 & 2 & 1 \end{pmatrix} \qquad \begin{pmatrix} 1 & 0 & 2 \\ 1 & 2 & 0 \\ 0 & 1 & 0 \end{pmatrix}$$

$$\begin{pmatrix} 1 & 0 & 2 \\ 1 & 2 & 0 \\ 2 & 1 & 1 \end{pmatrix} \qquad \begin{pmatrix} 0 & 1 & 2 \\ 1 & 2 & 2 \\ 2 & 1 & 2 \end{pmatrix} \qquad \begin{pmatrix} 1 & 1 & 2 \\ 1 & 2 & 1 \\ 2 & 1 & 0 \end{pmatrix}$$

$$\begin{pmatrix} 1 & 0 & 2 \\ 1 & 0 & 0 \\ 0 & 1 & 2 \end{pmatrix} \qquad \begin{pmatrix} 1 & 1 & 1 \\ 1 & 0 & 1 \\ 1 & 1 & 2 \end{pmatrix} \qquad \begin{pmatrix} 1 & 0 & 1 \\ 1 & 2 & 0 \\ 0 & 1 & 0 \end{pmatrix}$$

$$\begin{pmatrix} 0 & 0 & 2 \\ 1 & 2 & 1 \\ 0 & 1 & 0 \end{pmatrix} \qquad \begin{pmatrix} 0 & 1 & 1 \\ 1 & 2 & 1 \\ 0 & 1 & 0 \end{pmatrix} \qquad \begin{pmatrix} 1 & 1 & 1 \\ 1 & 2 & 1 \\ 1 & 1 & 0 \end{pmatrix}$$