

DSA preconditioning

• Actually our matrix is of the form:

$$(I + F^{-1}MSD)(I - L^{-1}MSD)\psi = (I + F^{-1}MSD)L^{-1}Q$$

• To see why, assume $L = F$:

$$(I + F^{-1}MSD)(I - F^{-1}MSD)\psi = (I + F^{-1}MSD)F^{-1}Q$$

$$(I + F^{-1}MSD)F^{-1}MSD\psi = (I + F^{-1}MSD)F^{-1}Q$$

$$MSD\psi = Q$$

• Can do this in infrastructure from DSA
because added error is the same as

$$(I + D^{-1}).$$

• To get source pass zero dummy vector for ϕ^{old} .