1125-11-641 **Valentijn Karemaker*** (vkarem@math.upenn.edu), David Rittenhouse Labs, 209 South 33rd Street, Philadelphia, PA 19104-6395, and **Sara Arias-de-Reyna**, **Cécile Armana**, **Marusia Rebolledo**, **Lara Thomas** and **Núria Vila**. *The inverse Galois problem for symplectic groups.*

The inverse Galois problem asks whether any finite group occurs as a Galois group. Given any prime number ℓ, we will construct a three-dimensional abelian variety $A/\mathbf{Q}$ such that the Galois representation attached to its ℓ-torsion realises the symplectic group $\mathrm{GSp}(6, \mathbf{F}_\ell)$ as a Galois group. This solves the inverse Galois problem for an infinite family of groups. The abelian variety will be the Jacobian variety of a curve whose behaviour at two distinct primes p and q satisfies certain congruence conditions. (Received September 08, 2016)