

# Séminaire de théorie des nombres

Le 8 avril 2013 à 14h (PRG)

## Quartic and $D_\ell$ fields of degree $\ell$ with given resolvent.

Exposé de Henri Cohen  
(Bordeaux)

### Résumé :

If  $L$  is a degree  $\ell$  field with Galois group of Galois closure  $D_\ell$ , then  $L$  has a quadratic resolvent  $k$ , and  $\text{disc}(L) = (\text{disc}(k)f(L))^{(\ell-1)/2}$  for a suitable integer  $f(L)$ . We give a completely explicit formula for the Dirichlet series  $\sum_L f(L)^{-s}$  in terms of Euler products attached to a finite number of auxiliary fields. This has applications both in the exact counting and in the asymptotics of such degree  $\ell$  fields. The same is also done for quartic fields with Galois closure  $A_4$  or  $S_4$  and given cubic resolvent.