

On some crystalline and mod  $p$  representations of  
 $\mathrm{GL}_2(\mathbb{Q}_p)$

Laurent Berger  
laurent.berger@ihes.fr  
*CNRS, IHÉS*  
*35 route de Chartres*  
*91440 Bures-sur-Yvette (France)*

**Abstract**

Breuil has associated a locally algebraic representation of  $\mathrm{GL}_2(\mathbb{Q}_p)$  to every irreducible 2-dimensional crystalline representation and conjectured that this association is compatible with reduction modulo  $p$ . I will explain the proof of part of this conjecture (*joint work with C. Breuil*).