1035-11-506 **Tong Liu*** (tongliu@math.upenn.edu), Department of Mathematics, 209 South 33rd Street, Philadelphia, PA 48105. *On lattices in semi-stable representations.*

Let $p \geq 3$ be a prime, K a finite extension over $\mathbb{Q}_p$, $G := \mathrm{Gal}(\bar{K}/K)$ and $E(u)$ a Eisenstein polynomial for a fixed uniformizer of K. We extend Kisin's theory on φ-modules of finite $E(u)$-height to give a new classification of G-stable $\mathbb{Z}_p$-lattices in semi-stable representations. We will also discuss some applications of this new classification to potentially semi-stable representations. (Received September 10, 2007)