

# Multivariable $(\phi, \Gamma)$ -modules for Lubin–Tate extensions

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Cyclotomic  $(\phi, \Gamma)$ -modules are a powerful tool for studying  $p$ -adic Galois representations, thanks to the fact that they are all overconvergent. We can construct  $(\phi, \Gamma)$ -modules for a Lubin–Tate extension, generalizing the cyclotomic setting. Which representations are overconvergent in this case? I will explain how to attach to any  $p$ -adic Galois representation a multivariable Lubin–Tate  $(\phi, \Gamma)$ -module, and how the problem can then be formulated in terms of differential equations, and solved.

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