## On Cherny's results in infinite dimensions: A theorem dual to Yamada–Watanabe

## Marco Rehmeier<sup>1,\*</sup>

## <sup>1</sup>Faculty of Mathematics, Bielefeld University, Germany \*Email: mrehmeier@math.uni-bielefeld.de

We prove that joint uniqueness in law and the existence of a strong solution imply pathwise uniqueness for variational solutions to stochastic partial differential equations of the form

$$dX_t = b(t, X)dt + \sigma(t, X)dW_t, \ t \ge 0,$$

and show that for such equations uniqueness in law is equivalent to joint uniqueness in law. Here, W is a cylindrical Wiener process in a separable Hilbert space U and the equation is considered in a Gelfand triple  $V \subseteq H \subseteq E$ , where H is some separable (infinite-dimensional) Hilbert space. This generalizes the corresponding results of A. Cherny for the case of finitedimensional equations (c.f. [1]).

## References

 A. Cherny, On strong and weak uniqueness for stochastic differential equations, *Theory Probab.* Appl. 46(3) (2002), pp. 406-419.