

## 1. Publications on the study of energy landscapes and rare events:

- (1) *Computing transition rates of thermally activated events in dislocation dynamics*  
C. Jin, Weiqing Ren and Y. Xiang  
Scripta Materialia, **62**, 206 (2010)
- (2) *Minimum action method for the Kardar-Parisi-Zhang equation*  
H. C. Fogedby and Weiqing Ren  
Phys. Rev. E **80**, 041116 (2009)
- (3) *Phase slips in superconducting wires with nonuniform cross section: A numerical evaluation using the string method*  
C. Qiu, T. Qian and Weiqing Ren  
Phys. Rev. B **77**, 104516 (2008)
- (4) *Application of the string method to the study of critical nuclei in capillary condensation*  
C. Qiu, T. Qian and Weiqing Ren  
J. Chem. Phys. **129**, 154711 (2008)
- (5) *Adaptive minimum action method for the study of rare events*  
X. Zhou, Weiqing Ren and W. E  
J. Chem. Phys. **128**, 104111 (2008)
- (6) *Simplified and improved string method for computing the minimum energy paths in barrier-crossing events*  
W. E, Weiqing Ren and E. Vanden-Eijnden  
J. Chem. Phys. **126**, 164103 (2007)
- (7) *Numerical study of metastability due to tunneling: The quantum string method*  
T. Qian, Weiqing Ren, J. Shi, W. E and P. Sheng  
Physica A, **379**, 491 (2007)
- (8) *Transition pathways in complex systems: Application of the finite-temperature string method to the alanine dipeptide*  
Weiqing Ren, E. Vanden-Eijnden, P. Maragakis, and W. E  
J. Chem. Phys. **123**, 134109 (2005)
- (9) *Transition pathways in complex systems: Reaction coordinates, isocommittor surfaces, and transition Tubes*  
W. E, Weiqing Ren, and E. Vanden-Eijnden  
Chem. Phys. Lett. **413**, 242 (2005)
- (10) *Finite temperature string method for the study of rare events*  
W. E, Weiqing Ren, and E. Vanden-Eijnden  
J. Phys. Chem. B **109**, 6688 (2005)
- (11) *Current dissipation in thin superconducting wires: Accurate numerical evaluation using the string method*  
T. Qian, Weiqing Ren, and P. Sheng  
Phys. Rev. B, **72**, 014512 (2005)

- (12) *Minimal action method for the study of rare events*  
W. E, Weiqing Ren, and E. Vanden-Eijnden  
Comm. Pure Appl. Math. **57**, 637 (2004)
- (13) *Energy landscape and thermally activated switching of submicron-sized ferromagnetic elements*  
W. E, Weiqing Ren, and E. Vanden-Eijnden  
J. Appl. Phys. **93**, 2275 (2003)
- (14) *Higher order numerical scheme in the string method for finding minimum energy paths and saddle points*  
Weiqing Ren  
Commun. Math. Sci. **1**, 377 (2003)
- (15) *String method for the study of rare events*  
W. E, Weiqing Ren, and E. Vanden-Eijnden  
Phys. Rev. B **66**, 052301 (2002).

## 2. Publications on the moving contact line problem:

- (1) *Contact line dynamics on heterogeneous surfaces*  
Weiqing Ren and W. E  
Phys. Fluids, **23**, 072103 (2011)
- (2) *Derivation of continuum models for the moving contact line problem based on thermodynamic principles*  
Weiqing Ren and W. E  
Commun. Math. Sci. **9**, 597 (2011)
- (3) *Continuum models for the contact line problem*  
Weiqing Ren, D. Hu and W. E  
Phys. Fluids, **22**, 102013 (2010)
- (4) *Boundary conditions for the moving contact line problem*  
Weiqing Ren and W. E  
Phys. Fluids, **19**, 022101 (2007)

## 3. Publications on multiscale modeling and computation:

- (1) *A general strategy for designing seamless multiscale methods*  
W. E, Weiqing Ren and E. Vanden-Eijnden  
J. Comput. Phys. **228**, 5437 (2009)
- (2) *Sequential multiscale modeling using sparse representation*  
C. García-Cervera, Weiqing Ren, J. Lu and W. E  
Commun. Comput. Phys. **4**, 1025 (2008)
- (3) *Seamless multiscale modeling of complex fluids using fiber bundle dynamics*  
Weiqing Ren  
Commun. Math. Sci. **5**, (2007)
- (4) *Analytical and numerical study of coupled atomistic-continuum methods for fluids*  
Weiqing Ren  
J. Comput. Phys. **227**, 1353 (2007)

- (5) *Heterogeneous multiscale methods: A review*  
W. E, B. Engquist, X. Li, Weiqing Ren and E. Vanden-Eijnden  
Commun. Comput. Phys. **2**, 367 (2007)
- (6) *Heterogeneous multiscale method for the modeling of complex fluids and micro fluidics*  
Weiqing Ren and W. E  
J. Comput. Phys. **204**, 1 (2005)

**4. Publications on adaptive mesh methods and applications:**

- (1) *Numerical simulation of self-focusing of ultrafast laser pulse*  
G. Fibich, Weiqing Ren, and X. P. Wang  
Phys. Rev. E **67**, 056603 (2003)
- (2) *A new adaptive grid method based on iterative grid redistribution*  
Weiqing Ren, X. P. Wang  
Methods and Application of Analysis **8**, 515 (2001)
- (3) *An iterative grid redistribution method for singular problems in multiple dimensions*  
Weiqing Ren, X. P. Wang  
J. Comput. Phys. **159**, 246 (2000)

**5. Numerical linear algebra:**

- (1) *Stability of the matrix factorization for solving block tridiagonal symmetric indefinite linear systems*  
J. Zhao, W. Wang, and Weiqing Ren  
Bit Numerical Mathematics **44**, 181 (2004)
- (2) *Iterative methods with preconditioners for indefinite systems*  
Weiqing Ren, and J. Zhao  
J. Comput. Math. **17**, 89 (1999)