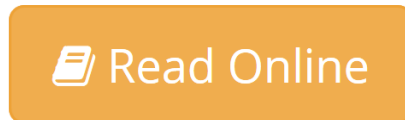


## Design and Simulation of Rail Vehicles (Ground Vehicle Engineering)

By Maksym Spiryagin, Colin Cole, Yan Quan Sun, Mitchell McClanachan, Valentyn Spiryagin, Tim McSweeney



**Design and Simulation of Rail Vehicles (Ground Vehicle Engineering)** By Maksym Spiryagin, Colin Cole, Yan Quan Sun, Mitchell McClanachan, Valentyn Spiryagin, Tim McSweeney

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- Sales Rank: #2779574 in Books

- Published on: 2014-05-13
- Original language: English
- Number of items: 1
- Dimensions: 9.20" h x .90" w x 6.20" l, 1.35 pounds
- Binding: Hardcover
- 337 pages

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### About the Author

**Maksym Spiryagin** works as a chief investigator at the Centre for Railway Engineering at Central Queensland University (CQU), Australia. His current research interests are rail vehicle dynamics, locomotive traction, mechatronics, and real-time and software-enabled control systems. He received his PhD in the field of railway transport in 2004 at the East Ukrainian National University. His research focused on rail vehicle design and the development of locomotive traction, real-time models, and vehicle mechatronic systems. He has more than 80 scientific publications and is listed as one of the inventors of 20 patents.

**Colin Cole** is the director of the Centre for Railway Engineering at Central Queensland University (CQU), Australia. He is also the research program leader for the Engineering and Safety Program of the Australian Cooperative Research Centre for Rail Innovation. His PhD was in longitudinal train dynamics. His rail industry experience includes track maintenance, rolling stock and vehicle dynamics, simulation, and the development of on-board devices. His current research interests are train and wagon dynamics, simulation, and train control technologies. He has published 72 papers and one book chapter, and has two patents.

**Yan Quan Sun** works as a senior research engineer at the Centre for Railway Engineering at Central Queensland University (CQU), Australia. His current research interests include rail vehicle dynamics, longitudinal train dynamics, rail vehicle-track interaction dynamics, and rail-track and bridge dynamics. He came to Australia in 1998 and received his PhD in the field of railway transport in 2002 at CQU. He has published more than 70 scientific and academic papers.

**Mitchell McClanachan** is a mechanical engineer and has been involved in railway research projects for individual railway companies and cooperative rail research agencies at the Centre for Railway Engineering at Central Queensland University (CQU), Australia since 1995. His areas of expertise include train simulation, wagon simulation, rolling stock testing, instrumentation, data acquisition, structural fatigue, energy optimization, hybrid locomotive systems, economics, human factors, railway safety systems, and automated monitoring systems. He has published numerous research reports, consulting reports, journal articles, conference papers, patents, and short stories. Mitchell is a registered professional engineer of Queensland, a member of Engineers Australia, and a member of the Australasian Association for Engineering Education.

**Valentyn Spiryagin** received his PhD in the field of railway transport in 2004 at the Volodymyr Dahl East

Ukrainian National University, Lugansk, Ukraine. He is now with the chair of railway transport at the same university. His research activities include rail vehicle dynamics, multibody simulation, and control systems. Currently, he works on rail vehicle design and dynamics, mechatronic suspension systems for locomotives, locomotive traction, and embedded software development. He has more than 60 scientific papers and 28 patents as one of the inventors.

**Tim McSweeney** has over 30 years of experience in the field of railway infrastructure asset management, specializing particularly in track engineering in the heavy haul environment. He was the senior infrastructure manager overseeing the Bowen Basin export coal network for Queensland Rail from 1991 until 2001 when he joined the Centre for Railway Engineering at Central Queensland University (CQU), Australia to follow his interest in railway research. He retired in 2007, but has continued his involvement as an Adjunct Research Fellow and was awarded an honorary master of engineering degree by CQU in 2011.

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