1.	Record Nr.	UNINA9910298963603321
	Autore	Abboud Khadige
	Titolo	Mobility Modeling for Vehicular Communication Networks / / by Khadige Abboud, Weihua Zhuang
	Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2015
	ISBN	3-319-25507-X
	Edizione	[1st ed. 2015.]
	Descrizione fisica	1 online resource (82 p.)
	Collana	SpringerBriefs in Electrical and Computer Engineering, , 2191-8112
	Disciplina	388.3124
	Soggetti	Computer communication systems Electrical engineering Computer Communication Networks Communications Engineering, Networks
	Lingua di pubblicazione	Inglese
	Formato	Materiale a stampa
	Livello bibliografico	Monografia
	Note generali	Description based upon print version of record.
	Nota di bibliografia	Includes bibliographical references at the end of each chapters.
	Nota di contenuto	Introduction.-System model -- Microscopic vehicle mobility model -- Spatio-temporal network topology analysis -- Conclusions and future work.
	Sommario/riassunto	This brief presents a stochastic microscopic mobility model that describes the temporal changes of intervehicle distances. The model is consistent with simulated and empirical vehicle traffic patterns. Using stochastic lumpability methods, the proposed mobility model is mapped into an aggregated mobility model that describes the mobility of a group of vehicles. In addition, the proposed mobility model is used to analyze the spatiotemporal VANET topology. Two metrics are proposed to characterize the impact of vehicle mobility on VANET topology: the time period between successive changes in communication link state (connection and disconnection) and the time period between successive changes in node's one-hop neighborhood. Using the proposed lumped group mobility model, the two VANET topology metrics are probabilistically characterized for different vehicular traffic flow conditions. Furthermore, the limiting behavior of a system of two-hop vehicles and the overlap-state of their coverage ranges is modeled, and the steady-state number of common vehicle neighbors between the two vehicles is approximately derived. The

proposed mobility model will facilitate mathematical analysis in VANETs. The spatiotemporal VANET topology analysis provides a useful tool for the development of mobility-aware vehicular network protocols. Mobility Modeling for Vehicular Communication Networks is designed for researchers, developers, and professionals involved with vehicular communications. It is also suitable for advanced-level students interested in communications, transport infrastructure, and infotainment applications.