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Title عنوان البحث	A Robust Self-Optimization Algorithm Based on Idiosyncratic Adaptation of Handover Parameters for Mobility Management in LTE-A Heterogeneous Networks
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Abstract خلاصة	<p>Mobility robustness optimization (MRO) is a fundamental issue regarding self-optimization network (SON). In long-term evolution-advanced (LTE-A), handover (HO) optimization in heterogeneous networks (HetNets) is an urgent need to improve system performance. This improvement is in terms of immunity against unnecessary HO (UHO) such as ping-pong HO (PPHO) and against failed HOs in the sense of radio link failure (RLF) such as too-early HO (TEHO) and too-late HO (TLHO), that is, RLF HO. The occurrence of these undesired HOs increases the consumption of network resources and decreases the quality of service (QoS). In this study, we propose a robust algorithm to reduce the number of PPHO, TLHO, and TEHO events to a minimum by an innovative mechanism that adaptively sets the HO control parameters (HCPs). This reduction is obtained without the need for unjustified techniques that assume certain thresholds for the ratio of PPHOs or the ratio of RLF HOs relative to the total number of HOs, as proposed in the most recent literature. We also present the importance of thinking about the existence of a direct relationship between the hysteresis margin (HM) and time-to-trigger (TTT). We invest this relationship in determining adaptive HCPs. Simulation results show that RLF HOs and PPHOs are minimal, almost zero, compared to the literature and the classical method. This study opens a new avenue for research on mobility management. It reorients research axes toward thinking about the possibility of a correlation between HM and TTT. This is what the research community has not yet realized.</p>