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Nota di contenuto	Introduction -- Power System Modelling and Analysis Techniques -- The Effects of HVDC Lines on Power System Stability -- Assessing the Robustness of Controllers -- Modal Estimation using the Probabilistic Collocation Method -- Probabilistic Tuning of Damping Controllers -- Conclusions and Future Work.
Sommario/riassunto	The work in this thesis proposes the innovative use of modern technologies and mathematical techniques to analyse and control future power systems. It exploits new enabling technologies such as Voltage Source Converter High Voltage Direct Current (VSC-HVDC) lines, both single and multi-terminal, and Wide Area Measurement Systems (WAMS) to reduce the risks of instability associated with greater utilisation of modern power systems. New control systems for these technologies have been analysed, and subsequently designed, using advanced probabilistic analysis techniques to ensure that they are robust to the variable and turbulent conditions expected in the future. The advanced probabilistic techniques used in the thesis for both system analysis and controller design represent one of the first such applications in open literature.