1. Record Nr. UNINA9910823498003321 Autore Zhang Yanpeng Titolo Quantum control of multi-wave mixing [[electronic resource] /] / Yanpeng Zhang, Feng Wen, and Min Xiao Weinheim, : Wiley-VCH, : Higher Education Press, c2013 Pubbl/distr/stampa **ISBN** 3-527-67238-9 3-527-67236-2 3-527-67239-7 Edizione [1st ed.] Descrizione fisica 1 online resource (353 p.) Altri autori (Persone) WenFeng XiaoMin Disciplina 535.2 Soggetti Nonlinear optics Quantum theory 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 and index. Nota di contenuto Quantum Control of Multi-Wave Mixing; Contents; Preface; 1 Introduction; 1.1 Suppression and Enhancement Conditions of the FWM Process; 1.1.1 Dressed State Theory; 1.1.2 Dark-State Theory in MWM Processes: 1.1.3 Suppression and Enhancement Conditions: 1.2 Fluorescence in MWM; 1.3 MWM Process in Ring Optical Cavity; 1.3.1 High-Order Cavity Mode Splitting with MWM Process; 1.3.2 Squeezed Noise Power with MWM: 1.3.3 Three-Mode Continuous-Variable Entanglement with MWM; 1.4 Photonic Band Gap; 1.4.1 Periodic Energy Level; 1.4.2 Method of Transfer Matrix; 1.4.3 Nonlinear Talbot Effect 1.4.4 Third- and Fifth-Order Nonlinearity1.5 MWM with Rydberg Blockade: 1.6 Summary: References: 2 MWM Quantum Control via EIT: 2.1 Interference of Three MWM via EIT; 2.1.1 Experiment Setup; 2.1.2 Basic Theory; 2.1.3 Results and Discussions; 2.1.4 Conclusion; 2.2 Observation of EWM via EIT; 2.2.1 Basic Theory; 2.2.2 Experimental Results; 2.2.3 Conclusion; 2.3 Controlled MWM via Interacting Dark States; 2.3.1 Basic Theory; 2.3.2 Multi-Wave Mixing (MWM); 2.3.2.1 Four-Wave Mixing (FWM); 2.3.2.2 Four-Dressing SWM; 2.3.2.3 Four-

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## Sommario/riassunto

Multi-wave mixing gives rise to new frequency components due to the interaction of light signals with a suitable nonlinear medium. In this book a systematic framework for the control of these processes is used to lead readers through a plethora of related effects and techniques.