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or a condensed medium, the pulse will self-focus into a series of self-foci, giving rise to the perception of a filament. This universal nonlinear propagation phenomenon is currently an interesting research topic at the forefront of applied physics and attracts more and more people into this field. The Physics of Intense Femtosecond Laser Filamentation ... Abstract. Powerful femtosecond laser pulses propagate in an apparent form of filamentation in all transparent optical media. This universal nonlinear phenomenon is currently an interesting topic of research at the forefront of applied physics and attracts more and more people to enter this field. This paper attempts to clarify some of the fundamental physics behind filamentation. Some Fundamental Concepts of Femtosecond Laser Filamentation was developed following the discovery and development of lasers in the 1960s. S.L. Chin, Femtosecond Laser Filamentation, Springer Series on Atomic, Optical, 1 and Plasma Physics 55, DOI 10.1007/978-1-4419-0688-5_1, C Springer Science+Business Media, LLC 2010 Springer Series on Powerful femtosecond laser pulses propagate in an apparent form of filamentation in all transparent optical media. This universal nonlinear phenomenon is currently an interesting topic of research... Some Fundamental Concepts of Femtosecond Laser Filamentation Cite this chapter as: Chin S.L. (2010) Multiple Filamentation. In: Femtosecond Laser Filamentation. Springer Series on Atomic, Optical, and Plasma Physics, vol 55. Multiple Filamentation | SpringerLink This book is focused on the nonlinear theoretical and mathematical problems associated with ultrafast intense laser pulse

propagation in gases and in particular, in air. With the aim of understanding the physics of filamentation in gases, solids, the atmosphere, and even biological tissue, Laser Filamentation - Springer Laser filamentation. We have pioneered the field of filamentation in air, starting in 1995 when we reported the first observation of UV filaments with femtosecond pulses [Xin Miao Zhao, Patrick Rambo, and Jean-Claude Diels. Filamentation of femtosecond UV pulses in air. In QELS, 1995, volume 16, page 178 (QThD2), Baltimore, MA, 1995. Optical ... 3. Laser filamentation | Diels Research Group Part of the Springer Series in Chemical Physics book series (CHEMICAL, volume 99) Abstract When an ultrashort laser pulse is focused inside the bulk of a transparent material, filamentation occurs as a result of the dynamic balance between the Kerr self-focusing and defocusing effects in the electron plasma, which is generated through the ionization process. Filamentation in Ultrafast Laser Material ... - Springer Book for Springer series "Progress in Ultrafast Intense Laser Science" ... When femtosecond laser pulses are focused inside the bulk of transparent materials, filamentation ... Filamentation ... Filamentation in ultrafast laser material processing This book covers a diverse cross section of this interdisciplinary research field, with contributions grouped into four categories: laser-induced filamentation; atoms and molecules in a laser field; interaction of solid materials with a coherent light field; and ion acceleration and ionization of atoms in super intense laser fields. This book series presents up-to-date reviews of advances in this interdisciplinary research field, spanning atomic and molecular physics,

as well as molecular ... Progress in Ultrafast Intense Laser Science XV - Springer Femtosecond Laser Filamentation. by See Leang Chin. Springer Series on Atomic, Optical, and Plasma Physics (Book 55) Thanks for Sharing! You submitted the following rating and review. We'll publish them on our site once we've reviewed them. Femtosecond Laser Filamentation eBook by See Leang Chin ... When femtosecond laser pulses are focused inside the bulk of transparent materials, filamentation occurs as a consequence of dynamic balance between Kerr self-focusing and defocusing effects in... (PDF)

springer(PUILS)filamentation - ResearchGate S. L. Chin, Femtosecond Laser Filamentation (Springer, New York, 2010). A. Couairon and A. Mysyrowicz, "Femtosecond filamentation in transparent media," Phys. Rep. 441 (2-4), 47-189 (2007). OSA | Ultrafast laser burst-train filamentation for non ... Femtosecond laser filamentation in gaseous media Self-focusing. A laser beam traversing a medium can modulate the refractive index of medium as $n = n_0 + n_2 I$ where n_0 , n_2 and I are linear refractive index, second order refractive index and intensity of propagating laser field respectively. Self-focusing occurs when the phase shift due to Kerr effect compensates for the phase shift because of Gaussian ... Filament propagation - Wikipedia In particular, femtosecond laser filamentation is a highly nonlinear process, and thus its properties such as the clamped laser intensity are strongly dependent on the working environments, that is, the fuels used in the combustion conditions in our current study.

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