## Non-WKB variational theory of self-focusing of an elliptically Gaussian laser beam in a plasma

Sodha, M.S.; Patel, L.A. (Indian Inst. of Tech., New Delhi. Centre of Energy Studies)

1982

### Abstract

[en] This paper presents a non-WKB variational treatment of the self-focusing of an illiptically Gaussian laser beam in an axially-inhomogeneous plasma. Six coupled second-order ordinary differential equations have been obtained for the axial amplitude, beam width parameters and coefficients. These equations have been compared with the WKB Akhmanov-approach equations. It is shown that the concept of a wave number is not strictly valid in the overdense region where the electric field of the laser beam varies highly nonsinusoidally. (author)

| | |
|---|---|
| Primary Subject | PLASMA PHYSICS AND FUSION TECHNOLOGY (A1411) |
| Source | National symposium on plasma physics; Delhi (India); 1–4 Apr 1980; 10 refs. |
| Record Type | Journal Article |
| Literature Type | Conference |
| Journal | Proceedings - Indian National Science Academy. Part A, Physical Sciences; ISSN 0370-0046; ; v. 48(suppl. no. 2); p. 194–197 |
| Country of publication | India |
| Descriptors (DEI) | BEAMS, FOCUSING, GAUSSIAN PROCESSES, INHOMOGENEOUS PLASMA, LASER RADIATION, VARIATIONAL METHODS, WKB APPROXIMATION |
| Descriptors (DEC) | ELECTROMAGNETIC RADIATION, PLASMA, RADIATIONS |
| Reference Number | 16059290 |
| INIS Volume | 16 |
| INIS Issue | 17 |

Print