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STUDY OF THE INFLUENCE OF SILVER IMPURITY ON THE LINEAR AND NONLINEAR REFRACTIVE INDEX OF TELLURITE GLASSES

Júlia Maria Giehl[1], Walter Maigon Pontuschka[1], Luiz Carlos Barbosa[2], Sarah Isabel Pinto Monteiro do Nascimento Alves[1,3], Antonio Martins Figueiredo Neto[1], Niklaus Ursus Wetter[4], Diogo Soga[1], Zélia Maria Da Costa Ludwig[5]

[1]Instituto de Física da Universidade de São Paulo, 187 Rua do Matão – Travessa R, 05508-090-São Paulo-SP, Brazil – julia@if.usp.br
[2]Laboratório de Materiais Vítreos, UNICAMP, Box 6165, 13083-970, -Campinas-SP, Brazil
[3] Departamento de Ciências Exatas e da Terra, UNIFESP – Campus Diadema, Rua Prof. Artur Riedel, 275 - Jd. Eldorado, 09972-270 – Diadema, SP, Brazil
[4]Centro de Lasers e Aplicações, IPEN, Avenida Lineu Prestes 2242 – Cidade Universitária – 05508-000 – São Paulo, SP, Brazil
[5]Departamento de Física ICE, Universidade Federal de Juiz de Fora, 36036-330, Juiz de Fora-MG, Brazil

The tellurite glass system x $AgO_{1/2}$. (100-x) (0,85 TeO_2. 0,12 Nb_2O_5. 0,03 Na_2O) mol%, where x = 0; 0.5; 2.0; 5.0 was investigated by OA, Z-scan and refractive index measurements using a coupled prism system. Refractive index data were used to calculate the linear susceptibility and dielectric constant using Wemple's method and the optical gap was evaluated from AO. No significant changes were introduced with the addition of silver. However, the Z-scan plots showed an assymetric pattern for samples with added silver, which was analyzed with the aid of the models: Sheik-Bahae [1,2], thermal lenses [3], aberrant thermal lenses [3] and Lara [4], yieldind discrepant results. We attribute this assymetry to a multiphonon emission and a model based on Sumi [5] is proposed.

References

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