

Differential Equations Applied to Photopyroelectric Detection

Equações Diferenciais em Detecção Fotopiroelétrica

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ABSTRACT

The present research aimed to study the technique of photopyroelectric detection, it is specifically setting SPPE. Besides performing graphics simulations analytical amplitude and phase of the thermal signal due to the modulation frequency generated to obtain ownership for a sample thermal diffusivity of vegetable oil.

Keywords: ppe detection, vegetable oil.

RESUMO

O presente trabalho de pesquisa teve como objetivo estudar a técnica de Detecção Fotopiroelétrica, especificamente, configuração SPPE. Além de realizar simulações analíticas dos gráficos de amplitude e fase dos sinais térmicos em função da frequência de modulação gerados para obter a propriedade térmica difusividade para uma amostra de óleo vegetal.

Palavras-chave: detecção ppe, óleo vegetal.

1 INTRODUCTION

The photothermal spectroscopy, particularly photopyroelectric detection is a technique based on the photothermal effect, consisting in heating a sample of nonradioactive de-excitation processes following the absorption of radiation.

The photopyroelectric technique directly measures the temperature oscillations in a medium with which it makes contact. A pyroelectric material varies in magnitude of the bias as a function of temperature variations. Pyroelectric sensors are such materials in form of films or sheets, which have their metallised surfaces, may act as current generators.