

## عنوان مقاله:

Novel optical MEMS FTIR, based on Bragg grating structure

## محل انتشار:

چهارمین کنفرانس سالانه ملی مهندسی برق، کامپیوتر و فناوری اطلاعات (سال: 1397)

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## خلاصه مقاله:

Furrier transform infrared spectroscopy (FTIR) is the key instruments in all the chemical labs for the analysis of chemical compositions in many applications such as identification of organic compounds, biochemical, food safety etc. In this paper, we introduce a new FTIR system including a new Brag-grating device, a broadband light source , integrated optical waveguides, and a photodiode. The proposed system has several advantages; the ability to randomly access to different wavelengths instead of swiping all wavelength, bandwidth adjustment, high reliability, immunity to electromagnetic noise and mechanical vibrations. The device is designed analytically at first, and then the design is confirmed utilizing numerical simulations. According to the numerical simulations, a mechanical movement of about 1 um is achieved by applying of only 5-volt electrical signal. The designed device is suitable for applications in which accidental accessibility is required instead of sweeping

## کلمات کلیدی:

Furrier transform infrared spectroscopy, Microelectromechanical systems, Bragg grating

## لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/812923>

