

## عنوان مقاله:

Reduction of Metal Artifact in Dental Computed Tomography by Homomorphic Wavelet Filtering in Sinogram Domain

## محل انتشار:

فصلنامه انرژی و محیط زیست ایران، دوره 9، شماره 4 (سال: 1397)

تعداد صفحات اصل مقاله: 8

## نویسندگان:

Hamid Hassanpour - *Shahrood University of Technology*

Reza Ebadi - *Faculty of Computer Engineering, Shahrood University of Technology, Shahrood, Iran*

Amin Zehtabian - *Institute for Chemistry and Biochemistry, Free University of Berlin, Berlin*

Zahra Amiri (Iran) - *Faculty of Computer Engineering and IT, Shahrood University of Technology, Shahrood*

## خلاصه مقاله:

In X-ray computed tomography (CT), existence of metallic implants in the subject may corrupt images and produce dark and bright streaking artifacts. In this paper a new method for reducing metal artifact from dental X-ray CT images is introduced. In the proposed method, the Radon transform is used in order to project the CT data into the sinogram domain. The sinogram of data can be decomposed into its illumination and reflectance components by using the homomorphic wavelet filtering. The investigation of the CT images shows that the degradations caused by metallic artifacts appear mainly in the illumination component. Therefore, in our approach the corrupted illumination component is restored by using the apriori information driven from the previous artifact-free sections. The results show that the metal artifacts are considerably reduced without eliminating the important details of the CT images. The proposed method is also compared with other existing methods on a set of dental CT images. Comparisons show the superiority of the proposed method over other existing methods.

## کلمات کلیدی:

Metal artifact reduction, Illumination-reflectance model, Homomorphic wavelet filtering, Sinogram domain, Dental X-ray images

## لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/868605>

