

# Accepted Manuscript

Experimental study of the contribution of gear tooth finishing processes to friction noise

S. Jolivet, S. Mezghani, M. El Mansori, R. Vargiolu, H. Zahouani



PII: S0301-679X(17)30230-X

DOI: [10.1016/j.triboint.2017.05.004](https://doi.org/10.1016/j.triboint.2017.05.004)

Reference: JTRI 4723

To appear in: *Tribology International*

Received Date: 2 January 2017

Revised Date: 26 April 2017

Accepted Date: 3 May 2017

Please cite this article as: Jolivet S, Mezghani S, El Mansori M, Vargiolu R, Zahouani H, Experimental study of the contribution of gear tooth finishing processes to friction noise, *Tribology International* (2017), doi: 10.1016/j.triboint.2017.05.004.

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

# Experimental study of the contribution of gear tooth finishing processes to friction noise

S. Jolivet<sup>a</sup>, S. Mezghani<sup>a</sup>, M. El Mansori<sup>b</sup>, R. Vargiolu<sup>c</sup> and H. Zahouani<sup>c</sup>

<sup>a</sup> Arts&Métiers ParisTech. Mechanics, Surfaces and Materials Processing (MSMP), Rue Saint Dominique, BP 508, 51006 Châlons-en-Champagne, Cedex, France.

<sup>b</sup> Arts&Métiers ParisTech. Mechanics, Surfaces and Materials Processing (MSMP), 2 cours des Arts et Métiers, 13617 Aix-en-Provence, France.

<sup>c</sup> Laboratoire de Tribologie et Dynamique des Systèmes, UMR CNRS 5513, Ecole Centrale de Lyon, 36 avenue Guy de Collongue, 69131 Ecully Cedex, France.

## Abstract

Micro geometry of a gear tooth influences the contact durability and wear performance. In this paper, different gear tooth flanks have been manufactured by different finishing processes, which were then characterized using multiscale surface analysis, based on wavelet transform. The friction noise was then measured before and after meshing in dry and lubricated conditions, to quantify the acoustic performance of the surfaces. To accomplish this objective, a new non-destructive sensory measurement technique was developed to characterize the friction noise generated by teeth flank surface. Results show the ability of the new method to discriminate functional behavior of different surfaces as well as give possible explanations as to the contribution of tooth flank asperities during the meshing on the gear in terms of gear noise performances.

**Keywords:** friction noise; multiscale surface characterization; dry and lubricated contact; finishing processes.

متن کامل مقاله

دریافت فوری ←

**ISI**Articles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات