

Abstract

Compared to the rising demands on the mechanical properties, today's engineering standards are often too conservative in their prediction on a part's suitability to specific applications. A possibility to overcome this drawback lies in methods of structural health monitoring or of non-destructive testing. They allow to monitor the mechanical properties and thus to guarantee their failure-free operation. In view of this, we will discuss an article of Lechleiter and Schlasche on "Identifying Lamé parameters in time-dependent elastic wave measurements" (Inverse Probl Sci Eng, 2017, Vol. 25, No26) in which the authors provide the mathematical means to successfully solve the proposed parameter identification problem. This gives rise to the idea to monitor Young's modulus, for example. The REGINN algorithm (REGularizing INexact Newton), whose basic functionality will be discussed briefly during the talk as well, was chosen as a regularization method for this specific problem. In this seminar talk, we will focus on the analytic results of the cited article and draw some conclusions regarding its relation to familiar identification settings in damage mechanics.