[Keynote Talk]: Determination of the Quality of the Machined Surface Using Fuzzy Logic

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Abstract : This paper deals with measuring and modelling of the quality of the machined surface of the metal machining process. The average surface roughness (R_a) which represents the quality of the machined part was measured during the dry turning of the AISI 4140 steel. A large number of factors with the unknown relations among them influences this parameter, and that is why mathematical modelling is extremely complicated. Different values of cutting speed, feed rate, depth of cut (cutting regime) and workpiece hardness causes different surface roughness values. Modelling with soft computing techniques may be very useful in such cases. This paper presents the usage of the fuzzy logic-based system for determining metal machining process parameter in order to find the proper values of cutting regimes.