摘要　针对数控机床故障发生的实际特点，
提出将模糊故障树分析与模糊危害度分析相结合的故障分析方法。以某型号数控机床为例，
对根据其现场故障数据建立的模糊故障树进行了定量分析，确定了顶事件及各次级事件的模糊故障率，
并在此基础上进行了模糊危害度分析，确定了关键元件和薄弱环节，为可靠性改进提供了理论依据。
关键词　数控机床,障分析,糊逻辑,糊故障树,糊故障率,糊危害度
分类号　TG659　　TB114.3

Fault analysis for numerical control machine tools based on fuzzy logic

Xue Yu-ia，Shen Gui-iang，Zhang Ying-hi

College of Mechanical Science and Engineering， Jilin University， Changchun 130022，
China

Abstract A fault analysis method by combination of the fuzzy fault tree analysis and the fuzzy
criticality analysis was proposed to consider the actual fault characteristics of the numerical
control(NC) machine tools. Taking a certain type of NC machine tool as an example a
quantitative analysis of the fault tree built on the basis of the on　site fault data was done
to determine the fuzzy fault rate of the top fault event and the secondary fault events.
Based on this analysis, the fuzzy criticality analysis was performed to find out the key
components and the weak links, providing a theoretical basis for the reliability improvement
of the NC machine tools.

Key words NC machine tool　fult analysis　uzzy logic　uzzy fault tree　uzzy fault rate　uzzy criticality

DOI:

通讯作者 申桂香 shengx@jlu.edu.cn