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## 镗削声发射信号与镗刀磨损量关系的研究

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### RELATIONSHIP BETWEEN ACOUSTIC EMISSION SIGNAL AND TOOL WEAR ON BORING CUTTING PROCESS

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**摘要** 对镗削过程中声发射信号与刀具磨损之间的关系进行了实验研究和理论分析,得到了声发射信号的特征量与刀具磨损量之间的关系。本文提出用声发射信号随时间变化的记录长度内最大峰值电压 $V_p$ (pmax)对时间的累积均值(?)及累积均方差 $\sigma_t$ 为在过程(In-Process)实时辨识镗刀磨损的特征量,以便实现刀具磨损的预报控制。

**关键词:** 声发射 镗刀磨损量 统计特性

**Abstract:** Theoretical analysis and experimental research are done for exploring the relationship between acoustic emission signal and tool wear on boring cutting process, and the relationship between values of characteristics concerning acoustic emission signal and the value of tool wear is obtained. In this paper it is suggested that the accumulative mean value  $\bar{t}$  and the accumulative standard deviation  $\sigma_t$ , which are the accumulative values of maximum peak voltage  $V_{pmax}$  vs.  $t$  in a record length, may be used as real time and in-process recognition of values of characteristics for tool wear so that realizing prediction control for tool wear may be possible.

**Keywords:** acoustic emission wear of borer statistical characteristics

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