

综述评论

## 含裂纹结构时间相关的疲劳断裂理论与剩余寿命评价技术

轩福贞, 涂善东, 王正东

上海华东理工大学机械工程学院

收稿日期 修回日期 网络版发布日期 接受日期

**摘要** 高温结构的疲劳失效是与时间相关的, 建立这一失效机制下的断裂理论和寿命评价技术, 进而控制结构失效是人们多年来努力的目标. 从裂纹扩展控制参量、裂纹扩展规律和寿命评价技术、材料老化与环境因素影响和结构完整性评定工程方法等几个方面, 对近年来这一领域的研究进展进行了总结, 并对今后该领域的发展方向进行了预测.

**关键词** [蠕变](#) [疲劳](#) [裂纹扩展](#) [断裂力学](#) [寿命评价](#)

分类号

## TIME-DEPENDENT FATIGUE FRACTURE THEORY AND RESIDUAL LIFE ASSESSMENT TECHNIQUES FOR DEFECTIVE STRUCTURES

”

上海华东理工大学机械工程学院

### Abstract

Fatigue failure of high temperature structures in power engineering and petrochemical industry is time dependent. In order to establish the corresponding fracture theory, develop a proper life assessment approach and then control the structure failure, many studies were carried out on this type of failure mechanism in the past years. In the present work, the recent development is reviewed in the following aspects: fracture parameters for crack extension, rules of the crack growth and residual life estimation, influences of materials aging and environment factors, and engineering approaches for structural integrity assessment. Research achievements in this field are summarized and some suggestions are presented based on the literature.

**Key words** [creep](#) [fatigue](#) [crack growth](#) [fracture mechanics](#) [life assessment](#)

DOI:

通讯作者

### 扩展功能

#### 本文信息

- ▶ [Supporting info](#)
- ▶ [PDF\(2807KB\)](#)
- ▶ [\[HTML全文\]\(0KB\)](#)
- ▶ [参考文献](#)

#### 服务与反馈

- ▶ [把本文推荐给朋友](#)
- ▶ [加入我的书架](#)
- ▶ [加入引用管理器](#)
- ▶ [复制索引](#)
- ▶ [Email Alert](#)
- ▶ [文章反馈](#)
- ▶ [浏览反馈信息](#)

#### 相关信息

- ▶ [本刊中 包含“蠕变”的 相关文章](#)
- ▶ 本文作者相关文章
  - [轩福贞](#)
  - [涂善东](#)
  - [王正东](#)