

电子激发态SO<sub>2</sub>(A<sup>1</sup>A<sub>2</sub>, B<sup>1</sup>B<sub>1</sub>)分子的碰撞猝灭动力学研究

张群,冉琴,陈从香,俞书勤,马兴孝

中国科学技术大学化学物理系

收稿日期 修回日期 网络版发布日期 接受日期

**摘要** 用四倍频YAG激光(266nm)把SO<sub>2</sub>分子从电子基态X<sup>1</sup>A<sub>1</sub>激励到电子激发态A<sup>1</sup>A<sub>2</sub>和B<sup>1</sup>B<sub>1</sub>的高振动耦合区,通过检测自发辐射SO<sub>2</sub>(B<sup>1</sup>B<sub>1</sub>→X<sup>1</sup>A<sub>1</sub>)的时间分辨信号,测定了室温(290K)下SO<sub>2</sub>(A<sup>1</sup>A<sub>2</sub>, B<sup>1</sup>B<sub>1</sub>)被He, 氯代甲烷分子和某些烷烃分子猝灭的速率常数。此外,还从碰撞配合物模型出发,对SO<sub>2</sub>(A<sup>1</sup>A<sub>2</sub>, B<sup>1</sup>B<sub>1</sub>)的猝灭机制进行了讨论。

**关键词** [二氧化硫](#) [激发态](#) [氦](#) [氯甲烷](#) [分子碰撞](#) [猝灭动力学](#)

分类号 [064](#)

### Kinetic study on quenching of electronically excited SO<sub>2</sub>(A<sup>1</sup>A<sub>2</sub>, B<sup>1</sup>B<sub>1</sub>)

ZHANG QUN,RAN QIN,CHEN CONGXIANG,YU SHUQIN,MA XINGXIAO

**Abstract** The quenching rate constants of SO<sub>2</sub>(A<sup>1</sup>A<sub>2</sub>, B<sup>1</sup>B<sub>1</sub>) by some molecules were measured by using laser excitation (at 266nm) of SO<sub>2</sub> into the first allowed absorption region (240-340nm) and observation of time resolved fluorescence SO<sub>2</sub>(B→X) methods. In addition, the formation cross sections of complex between SO<sub>2</sub> (A and B) and quenchers were calculated by using collision complex model. The results imply that the quenching of SO<sub>2</sub>(A, B) is probably controlled by the entrance-channel and might be mainly ascribed to the contribution of chemical reactions.

**Key words** [SULFUR DIOXIDE](#) [EXCITED STATE](#) [HELIUM](#) [CHLOROMETHANE](#) [MOLECULE COLLISIONS](#)

DOI:

通讯作者

扩展功能

本文信息

▶ [Supporting info](#)

▶ [PDF\(407KB\)](#)

▶ [\[HTML全文\]\(0KB\)](#)

▶ [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“二氧化硫”的  
相关文章](#)

▶ 本文作者相关文章

- [张群](#)
- [冉琴](#)
- [陈从香](#)
- [俞书勤](#)
- [马兴孝](#)