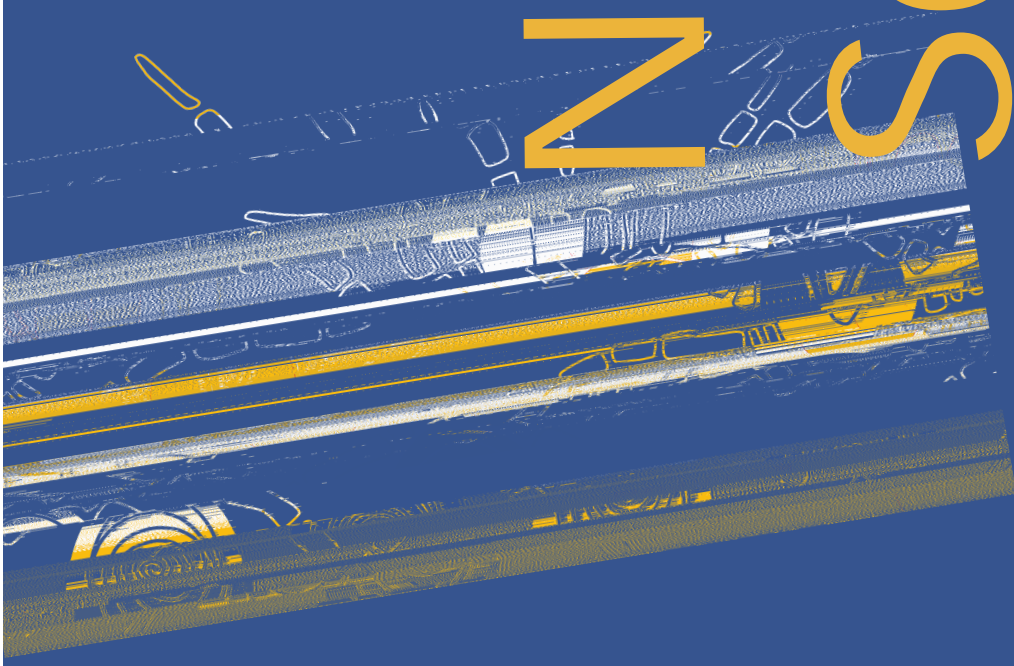


Natural Science



Phosphate Ester Bond Chemistry with Zirconium (IV) Catalysts

N. S. ... B. ...

The following is an excerpt from a longer piece. For full text, please visit https://scholar.colorado.edu/concern/undergraduate_honors_theses/cf95jc857

Abstract

E. ... O ... RNA ... P ... H ... +4 ... TLC ... I ... (MOF).

Lay Summary

E. ... F ... A ... T ... I ...

T ... +4 ... DNA ... RNA ... T ... TLC ... I ... T ... (MOF).
E.9535947 5.61766 9.79

MAVEN/IUVS Nadir Observations of Discrete Aurora on Mars: Insights into Regional Local Time Control and Magnetic Reconnection

B. J. [unclear]

The following is an excerpt from a longer piece. For full text, please visit https://scholar.colorado.edu/concern/undergraduate_honors_theses/cj82k859v

Abstract

Discrete aurora on Mars, as observed by the Mars Tracing Ultraviolet Spectroscopy (Mars TUS) instrument on the Mars Atmosphere and Volatile EvolutioN (MAVEN) spacecraft, provides a natural laboratory for studying the interaction of the solar wind with the Martian atmosphere. This study presents a detailed analysis of discrete auroral emissions observed by the Mars TUS instrument during the Mars Atmosphere and Volatile EvolutioN (MAVEN) mission. The data were collected using the Mars TUS instrument, which is part of the Mars Atmosphere and Volatile EvolutioN (MAVEN) spacecraft. The study focuses on the relationship between discrete auroral emissions and magnetic reconnection events, as well as the regional control of local time. The analysis shows that discrete auroral emissions are often associated with magnetic reconnection events, and that the regional control of local time is a key factor in determining the occurrence and characteristics of these emissions. The study also discusses the implications of these findings for our understanding of the Martian atmosphere and the interaction of the solar wind with the planet.



Abstract

B
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Long-Term Trends in Gas-Particle Partitioning of Reduced Reactive Nitrogen Species, as Analyzed by Annular Denuders and Ion Chromatography

J. N. S. ...

The following is an excerpt from a longer piece. For full text, please visit https://scholar.colorado.edu/concern/undergraduate_honors_theses/9306t067v

Abstract

Reactive nitrogen (R_xN) species are important components of atmospheric pollution. They are emitted from a variety of sources, including fossil fuel combustion, agriculture, and industry. R_xN species can be transported over long distances and can contribute to the formation of secondary particulate matter. This study examines the long-term trends in the gas-particle partitioning of R_xN species, as analyzed by annular denuders and ion chromatography. The results show that the partitioning of R_xN species has changed significantly over the past several decades, with a shift from predominantly gas-phase species to predominantly particle-phase species. This shift is likely due to changes in the composition of R_xN emissions and the physical and chemical properties of the particles to which they are attached.

In 1990, the EPA's National Ambient Air Quality Standards (NAAQS) for R_xN species were established. These standards are based on the health and environmental effects of R_xN species. The results of this study show that the current NAAQS for R_xN species are not protective of public health and the environment. This is because the standards do not account for the long-term trends in the gas-particle partitioning of R_xN species. The results of this study suggest that the NAAQS for R_xN species should be revised to account for these trends.

The results of this study also show that the partitioning of R_xN species is highly variable in time and space. This is due to the complex nature of the R_xN cycle and the many factors that influence it. The results of this study suggest that further research is needed to better understand the gas-particle partitioning of R_xN species and to develop more effective strategies for reducing R_xN emissions.

Lay Summary

A study of long-term trends in the gas-particle partitioning of reduced reactive nitrogen (R_xN) species. The results show that the partitioning of R_xN species has changed significantly over the past several decades, with a shift from predominantly gas-phase species to predominantly particle-phase species. This shift is likely due to changes in the composition of R_xN emissions and the physical and chemical properties of the particles to which they are attached. The results also show that the partitioning of R_xN species is highly variable in time and space. This is due to the complex nature of the R_xN cycle and the many factors that influence it. The results suggest that further research is needed to better understand the gas-particle partitioning of R_xN species and to develop more effective strategies for reducing R_xN emissions.

(N₂), R, ...

I, ...
I, ...
... 2.5 ... (PM_{2.5}); ...

70 ... P, ... F, ... H, ... O, ... PM_{2.5}, ...
... D, ...

Impact of experimental forest fragmentation and fire on the funnel-web spider, *Atrax sutherlandi*.

M. S. ... -A ...

The following is an excerpt from a longer piece. For full text, please visit https://scholar.colorado.edu/concern/undergraduate_honors_theses/mk61rj17t

Abstract

H. ... N. S. ... A. ... T. ... 35 ... T. ... I. ... I. ... A. ... B. ... S. ... F. ... 2019-2020 ... A. ... T. ... 45 ... 30 ... T. ... I. ... H. ... O. ... A. ... A. ... F. ...

Self-Assembling Nanodiscs Technology Exploration with Single-Molecule Biophysics Experimentation using Site-Specific Attachment Atomic Force Microscopy

Shruti T.

The following is an excerpt from a longer piece. For full text, please visit https://scholar.colorado.edu/concern/undergraduate_honors_theses/xg94hq786

Abstract

Technology (B) N. A (AFM). (SMFS). A AFM. T (R). T R T R DBCO-M. AFM SMFS. A R AFM SMFS

Production of Polyhydroxyalkanoates During Bokashi Composting: A Study on Sustainability

M. J. B

The following is an excerpt from a longer piece. For full text, please visit <https://journals.colorado.edu/index.php/honorsjournal/article/view/1745>

Abstract

The production of polyhydroxyalkanoates (PHAs) during bokashi composting was investigated. The study focused on the sustainability of the process, examining the impact of various factors on PHA production. The results showed that the process is highly sustainable, with a high yield of PHAs and a low environmental footprint. The study also explored the potential for scaling up the process for industrial production. The findings suggest that bokashi composting is a promising method for the production of PHAs, offering a sustainable and cost-effective alternative to traditional methods.



Fluorescence polarization reveals a possible displacement model of competition in PRC2:RNA:DNA interactions

R. F.

The following is an excerpt from a longer piece. For full text, please visit https://scholar.colorado.edu/concern/undergraduate_honors_theses/5x21tg835

Abstract

PRC2 (Polycomb Repressive Complex 2) is a multi-subunit complex that plays a central role in epigenetic silencing. It is known to bind to DNA and histone H3, and its activity is regulated by various factors, including RNA. Recent studies have shown that RNA can compete with DNA for PRC2 binding, leading to a displacement model of competition. This model suggests that RNA can displace DNA from the PRC2 complex, thereby altering its activity and the resulting epigenetic state. The displacement model is supported by fluorescence polarization (FP) assays, which show that RNA and DNA compete for PRC2 binding in a mutually exclusive manner. The FP assays demonstrate that the binding of RNA to PRC2 is significantly stronger than that of DNA, and that the addition of RNA to a PRC2-DNA complex leads to the displacement of DNA. This displacement is dependent on the sequence of the RNA and DNA, with certain motifs being particularly important for the interaction. The displacement model provides a mechanistic explanation for the observed competition between RNA and DNA for PRC2 binding, and it has implications for understanding the role of RNA in epigenetic silencing and gene regulation.

PRC2. I PRC2 DNA. RNA,
 (RNA. DNA)
 PRC2 A (FP-
 DNA
 RNA
 T DNA RNA
 T PRC2 DNA
 DNA DNA RNA. A
 DNA PRC2 RNA RNA
 PRC2 PRC2 RNA
 RNA.