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Journal of Wildlife Management 74(2):261–271, 2010, DOI: 10.2193/2009-020

Management and Conservation Article

## From Wiens to Robel: A Review of Grassland-Bird Habitat Selection

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**ABSTRACT** Efforts to stabilize or increase grassland bird populations require identification of suitable habitat as a first step. Although the number of studies examining grassland bird habitat selection has increased substantially in recent years, much uncertainty exists regarding local-scale habitat variables that researchers should consider. We reviewed 57 studies and identified important vegetation features correlated with grassland bird abundance, density, occurrence, and nest and nestling selection. Our objectives were to 1) guide future studies of grassland-bird habitat use by providing a reduced set of relevant vegetation characteristics, 2) challenge researchers to critically think about what variables to consider, and 3) highlight the need to include consistent definitions of terms used to describe grassland bird habitat. We identified 9 variables that were important predictors of habitat use by grassland birds: coverage of bare ground (important in 50% of the instances where it was included), grass (16% of instances), dead vegetation (13% of instances), litter (13% of instances), and litter depth (12% of instances), along with an index of vegetation density (10% of instances) and volume (9% of instances), litter depth (16% of instances), and vegetation height (41% of instances). Only 21% of studies provided information on effects sizes and measures of variance. Furthermore, definitions of measured habitat variables were not consistent among studies. We provide definitions of the 9 important variables and implore authors to report effect size and measures of variance. Standardization of terms and reporting of meaningful results will facilitate replication of wildlife research and enhance our ability to recognize general patterns that emerge from observational studies of habitat use.

**KEY WORDS** Dubeumite, grassland passerines, habitat models, habitat use, litter depth, vegetation density, vegetation height, vegetation structure.

The widespread decline of grassland birds in North America has been referred to as an unfolding “conservation crisis” (Brennan and Kulesky 2005). The continent-wide nature of these declines suggests that the causes are not local isolated phenomena and likely involve the loss and degradation of grassland habitat (Vickery et al. 1999b, Vickery and Herkert 2001, Brennan and Kulesky 2005). Hence, efforts to stabilize or increase grassland bird populations require identification of remaining habitat as a first step (Vickery and Herkert 2001), followed by habitat management and restoration (Brennan and Kulesky 2005). Not surprisingly, the number of studies examining grassland-bird habitat selection has increased substantially in recent years.

Two important questions researchers must answer before conducting any type of habitat study are these: 1) what features of the habitat should be measured, and 2) what is the best method for measuring those features. Wiens (1969) contended that a description of bird habitat should provide sufficient detail to differentiate among habitats used by multiple species, yet be suitably flexible and precise to reduce the need to artificially classify and categorize habitat. Furthermore, researchers should consider those habitat features deemed important to the animals being studied (Wiens 1969). Stemming from these requirements, Wiens (1969) developed a protocol for quantifying grassland bird habitat based on structural vegetation characteristics such as density, height, and dispersion. The system is both efficient and easy to use in the field, making it one of the preferred methods for quantifying grassland bird habitat. Many of the structural characteristics included by Wiens (1969) are still

perceived to be important for contemporary assessments of grassland-bird habitat use.

Although Wiens’ (1969:86) system included a set of carefully chosen variables, he suggested that “...it does not seem proper to restrict consideration, a priori, to a few readily-measurable habitat features which may or may not have any direct relevance to the activity of birds.” Numerous studies conducted since Wiens’ (1969) monograph have identified relevant vegetation features influencing habitat use that should aid researchers in defining a priori hypotheses regarding grassland-bird habitat selection. This approach would allow development of more robust habitat selection models that could be used to make informed decisions regarding habitat management. Even so, grassland bird researchers still conduct exploratory analyses because they are uncertain of important habitat variables. This is particularly apparent in the grassland-bird Breeding Biology Research and Monitoring Database (BBIRD) protocol where >40 vegetation parameters are measured at each nest (Martin et al. 1997). Continued use of exploratory analyses and measurement of all potentially important vegetation variables suggests that either no pattern regarding grassland-bird habitat relationships has emerged, or that apparent trends are not being recognized, or are being ignored.

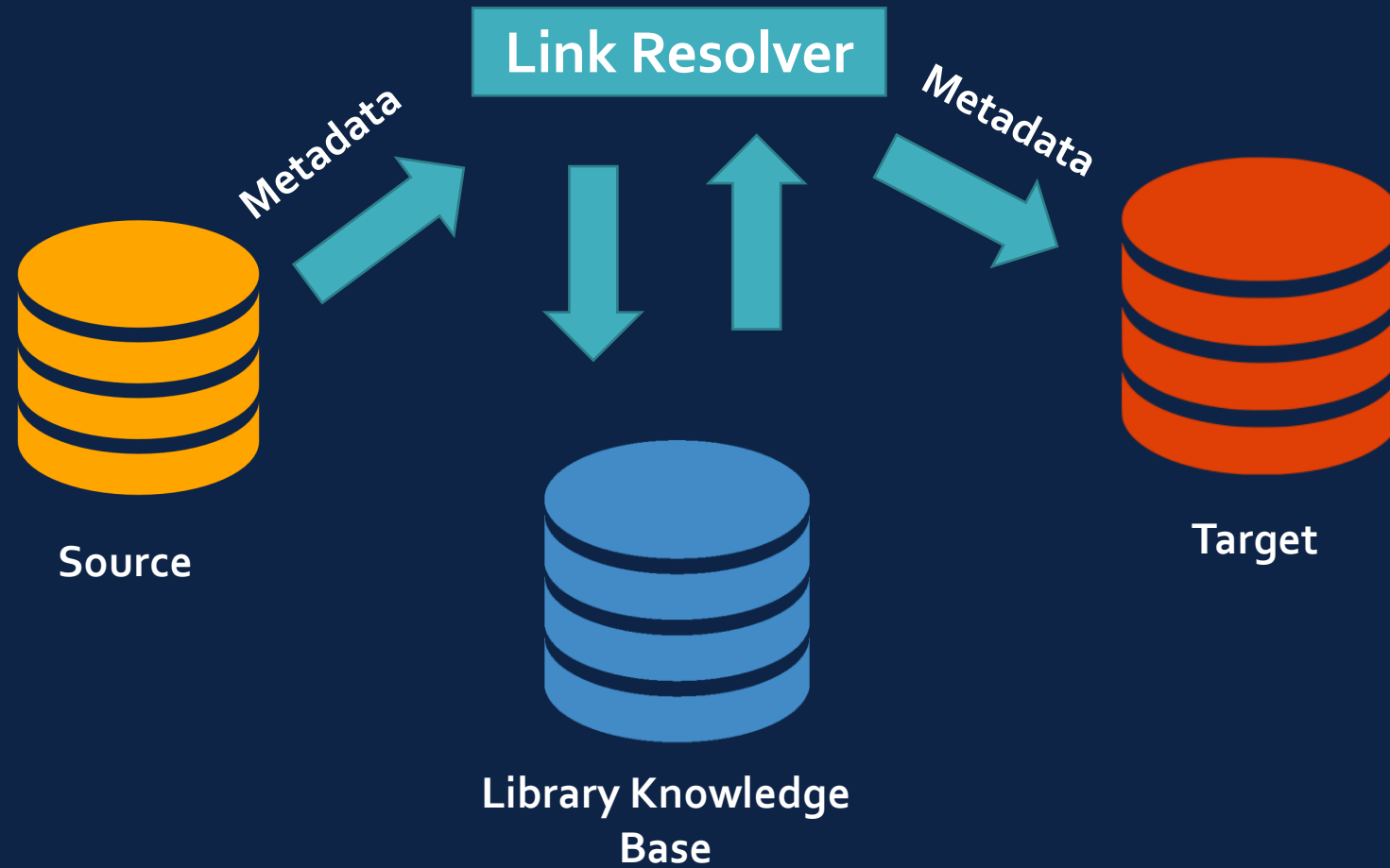
We reviewed studies of habitat selection by grassland birds in North America to 1) summarize methods used by researchers for quantifying grassland bird habitat, and 2) identify patterns of grassland-bird vegetation associations. Our results are intended to 1) guide future studies of grassland-bird habitat use by providing a reduced set of relevant vegetation characteristics for researchers to consider, 2) challenge researchers to critically think about what variables to consider, and 3) highlight the need to include

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Fisher and Davis • Grassland-Bird Habitat Selection 265

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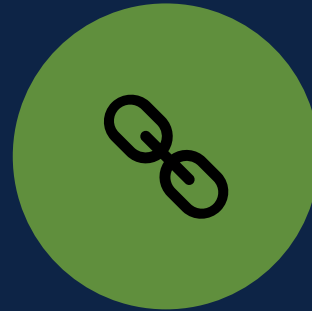
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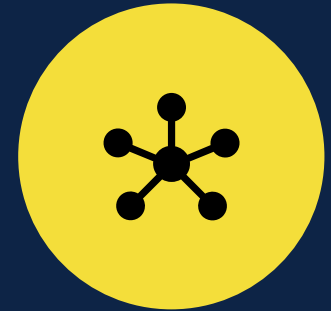
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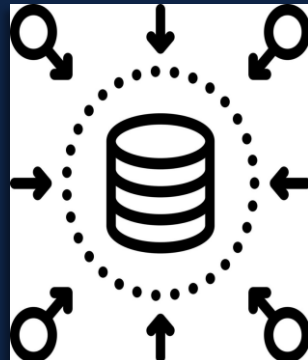
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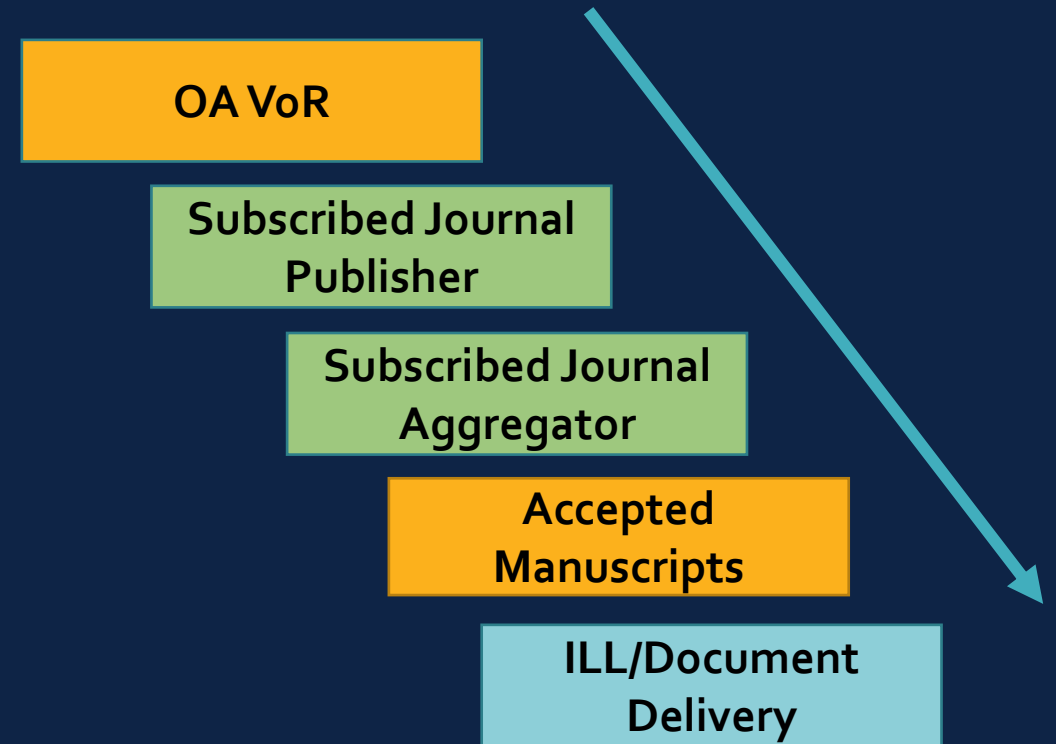
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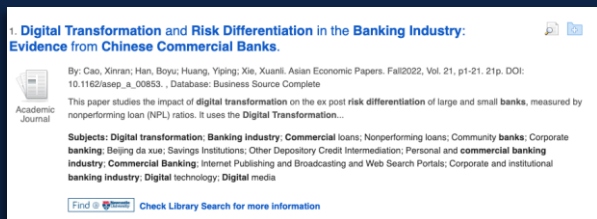
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Journal of Biomaterials Science 21 (2010) 803–819  
Journal of BIOMATERIALS SCIENCE  
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## Controlled Release of PDGF-bb by Coaxial Electrospun Dextran/Poly(L-lactide-co-ε-caprolactone) Fibers with an Ultrafine Core/Shell Structure

Hua Li<sup>a,b</sup>, Chenguang Zhao<sup>a,b</sup>, Zhexiang Wang<sup>c</sup>, Hong Zhang<sup>a,b</sup>, Xiaoyan Yuan<sup>a,b,\*</sup> and Deling Kong<sup>c</sup>

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<sup>b</sup> Tianjin Key Laboratory of Composite and Functional Materials, Tianjin University, Tianjin 300072, P. R. China  
<sup>c</sup> Key Laboratory of Bioactive Materials, Ministry of Education, College of Life Science, Nankai University, Tianjin 300071, P. R. China

Received 3 October 2008; accepted 15 April 2009

**Abstract**  
Membranes composed of dextran (DEX) and poly(L-lactide-co-ε-caprolactone) (PLCL) as ultrafine core/shell fibers for loading platelet-derived growth factor-bb (PDGF-bb) were produced by coaxial electrospinning. The morphology and core/shell structure of the DEX/PLCL fibers containing PDGF-bb were investigated by scanning electron microscopy and transmission electron microscopy. The loading amount of PDGF-bb in the DEX/PLCL membrane prepared at 0.1 ml/h of the inner solution flow rate (DEX/PLCL-1P) was much lower than that in DEX/PLCL-2P and DEX/PLCL-3P obtained at 0.2 ml/h and 0.3 ml/h inner solution flow rate, respectively. All three membranes showed obvious burst release of PDGF-bb in the first

ARTICLE



## Controlled Release of PDGF-bb by Coaxial Electrospun Dextran/Poly(L-lactide-co-ε-caprolactone) Fibers with an Ultrafine Core/Shell Structure

Li, Hua ; Zhao, Chenguang ; Wang, Zhexiang ; Zhang, Hong ; Yuan, Xiaoyan ; Kong, Deling  
Journal of biomaterials science. Polymer ed., 2010, Vol.21 (6-7), p.803-819

“ Membranes composed of dextran (DEX) and poly(L-lactide-co-ε-caprolactone) (PLCL) as ultrafine core for loading platelet-derived growth factor-bb (PDGF-bb)... ”

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## Controlled Release of PDGF-bb by Coaxial Electrospun Dextran/Poly(L-lactide-co-ε-caprolactone) Fibers with an Ultrafine Core/Shell Structure

Hua Li, Chenguang Zhao, Zhexiang Wang, Hong Zhang, Xiaoyan Yuan & Deling Kong  
Pages 803-819 | Published online: 02 Apr 2012  
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1. **Has the terrorist attack on Charlie Hebdo fuelled resistance towards Muslim immigrants in Europe? Results from a natural experiment in six European countries.**



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By: Savelkoul, Michael; te Grotenhuis, Manfred; Scheepers, Peer. *Acta Sociologica* (Sage Publications, Ltd.). Nov2022, Vol. 65 Issue 4, p357-373. 17p. DOI: 10.1177/00016993221088447. , Database: Business Source Complete

**Subjects:** Europe; Terrorism; Immigrants; Intergroup communication; Political crimes & offenses

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**Has the terrorist attack on Charlie Hebdo fuelled resistance towards Muslim immigrants in Europe? Results from a natural experiment in six European countries**

Acta Sociologica  
2022, Vol. 65(4) 357-373  
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**Michael Savelkoul**   
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**Manfred te Grotenhuis** <sup>†</sup>  
Radboud University Nijmegen, the Netherlands

**Peer Scheepers**  
Radboud University Nijmegen, the Netherlands

#### Abstract

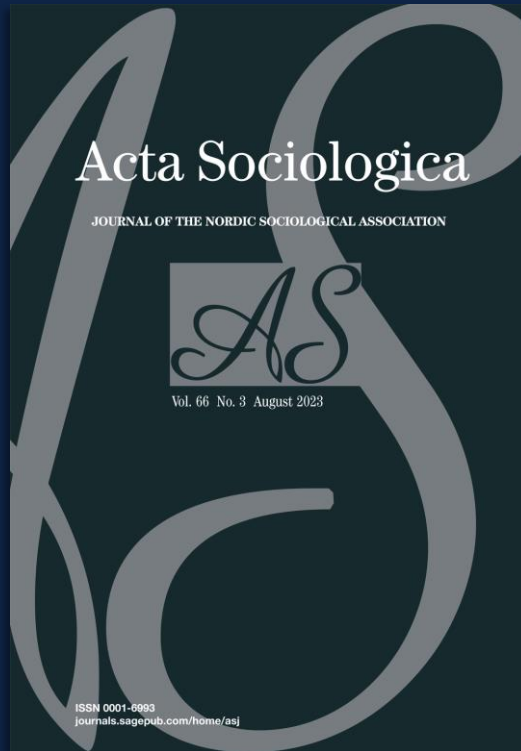
In recent years, Europe witnessed several terrorist attacks by Islamist terrorists. To date, crucial questions are whether and how such events influence the European public's resistance towards Muslims, and if such influence depends on the level of intergroup competition, both at the contextual and individual level. Using the European Social Survey (ESS7), we were able to compare respondents interviewed shortly before and after the terrorist attack on Charlie Hebdo in January 2015. While we found no support for a moderating role of intergroup competition, our study shows that the levels of resistance towards Muslim immigrants were higher shortly after the attacks in Ireland and Czech Republic, however, lower in France. For Austria, Finland and Germany we found no influence. Our findings indicate that one cannot be too careful with generalizing conclusions from single countries.

#### Keywords

Resistance towards Muslim immigrants, terrorist attacks, Charlie Hebdo, Europe



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### Reactive molecular dynamics for the $[\text{Cl}-\text{CH}_3-\text{Br}]^-$ reaction in the gas phase and in solution: a comparative study using empirical and neural network force fields

Sebastian Brickel<sup>2</sup>, Akshaya K Das<sup>2</sup>, Oliver T Unke<sup>2</sup>, Haydar T Turan<sup>1</sup> and Markus Meuwly<sup>1</sup>

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[Electronic Structure, Volume 1, Number 2](#)  
[Understanding Chemistry and Biochemistry with Conceptual Models](#)

Citation Sebastian Brickel *et al* 2019 *Electron. Struct.* 1 024002  
DOI 10.1088/2516-1075/ab1edb

References

+ Article and author information

### Abstract

The nucleophilic substitution reaction  $[\text{Cl}-\text{CH}_3-\text{Br}]^-$  is used for a comparative study of several reactive molecular dynamics schemes in the gas phase and in solution. Multi surface adiabatic reactive MD (MS-ARMD) and multi-state valence bond (MS-VALBOND) use empirical force fields to allow bond-breaking and bond-formation in dynamics studies. As a third alternative, machine learning is used to obtain a reactive force field from training a neural network. The focus of the present work is on highlighting differences of the parametrisation strategy and the associated computational cost and parametrization effort, as well as discussing the transferability and the ease with which the methods can be applied to a given chemical reaction. All methods are able to fit the reference data with  $R^2 = 0.99$  or better. Free energy barrier heights in the gas phase from all three methods for the  $\text{S}_{\text{N}}2$  reaction compare to within 3.5 kcal mol<sup>-1</sup> for the forward and to within 0.6 kcal



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PAPER

### Reactive molecular dynamics for the $[\text{Cl}-\text{CH}_3-\text{Br}]^-$ reaction in the gas phase and in solution: a comparative study using empirical and neural network force fields

Sebastian Brickel<sup>1</sup>, Akshaya K Das<sup>2</sup>, Oliver T Unke<sup>2</sup>, Haydar T Turan and Markus Meuwly<sup>1</sup>

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<sup>1</sup> These authors contributed equally.  
E-mail: [m.meuwly@unibas.ch](mailto:m.meuwly@unibas.ch)

Keywords: reactive molecular dynamics,  $\text{S}_{\text{N}}2$ , umbrella sampling, neural network, condensed phase  
Supplementary material for this article is available [online](#)

### Abstract

The nucleophilic substitution reaction  $[\text{Cl}-\text{CH}_3-\text{Br}]^-$  is used for a comparative study of several reactive molecular dynamics schemes in the gas phase and in solution. Multi surface adiabatic reactive MD (MS-ARMD) and multi-state valence bond (MS-VALBOND) use empirical force fields to allow bond-breaking and bond-formation in dynamics studies. As a third alternative, machine learning is used to obtain a reactive force field from training a neural network. The focus of the present work is on highlighting differences of the parametrisation strategy and the associated computational cost and parametrization effort, as well as discussing the transferability and the ease with which the methods can be applied to a given chemical reaction. All methods are able to fit the reference data with  $R^2 = 0.99$  or better. Free energy barrier heights in the gas phase from all three methods for the  $\text{S}_{\text{N}}2$  reaction compare to within 3.5 kcal mol<sup>-1</sup> for the forward and to within 0.6 kcal mol<sup>-1</sup> for the reverse reaction. For the reaction in solution only the MS-ARMD and MS-VALBOND approaches can be used as training a NN for this would be computationally extremely prohibitive. Overall, MS-VALBOND yields the best results compared to experiment with differences in the barrier heights of  $\sim 1$  kcal mol<sup>-1</sup> for the reaction in solution. Potential improvements for all three methods are discussed and aim to guide computational investigation of chemical reactions applying these three methods.

### 1. Introduction

Understanding atomistic and molecular aspects of chemical reactions is one of the cornerstones in chemistry and biology. Characterizing reactions in time and space is challenging due to the different length- and time-scales on which the nuclear dynamics takes place [1]. For example, typical reaction times for the Claisen rearrangement [2] in solution are on the order of seconds [3] or milliseconds (in the protein) [4]. However, the chemical step (i.e. C-C bond formation and C-O bond breaking) [5] occurs on the femtosecond time scale. In other words, during  $10^9$  to  $10^{15}$  vibrational periods energy is redistributed in the system until sufficient energy has accumulated along the relevant 'progression coordinate' for the reaction to occur. Because the 'chemical step' is so rapid and the system concentration at the transition state is negligible, direct experimental characterization of the transition state and the dynamics between reactant and product is extremely challenging even with current state-of-the-art methods, including NMR, [6] IR, [7] or x-ray [8, 9] spectroscopies.

Atomistic simulations have shown to provide molecular-level insight into the energetics and dynamics of chemical reactions for systems ranging from small (triatomic) molecules to proteins in the condensed phase [1, 10–13]. An essential requirement for a meaningful contribution of computer-based work to characterize chemical reactions is a correct description of the intermolecular interactions along the entire reaction path including the degrees of freedom orthogonal to it. This involves regions around the reactants, products and the transition state(s). Intermolecular interactions in molecular systems are often represented as a Born-Oppenheimer

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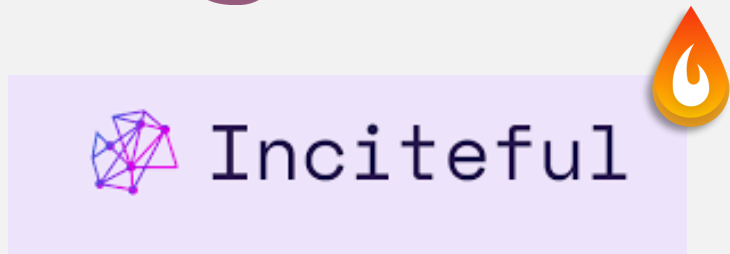
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