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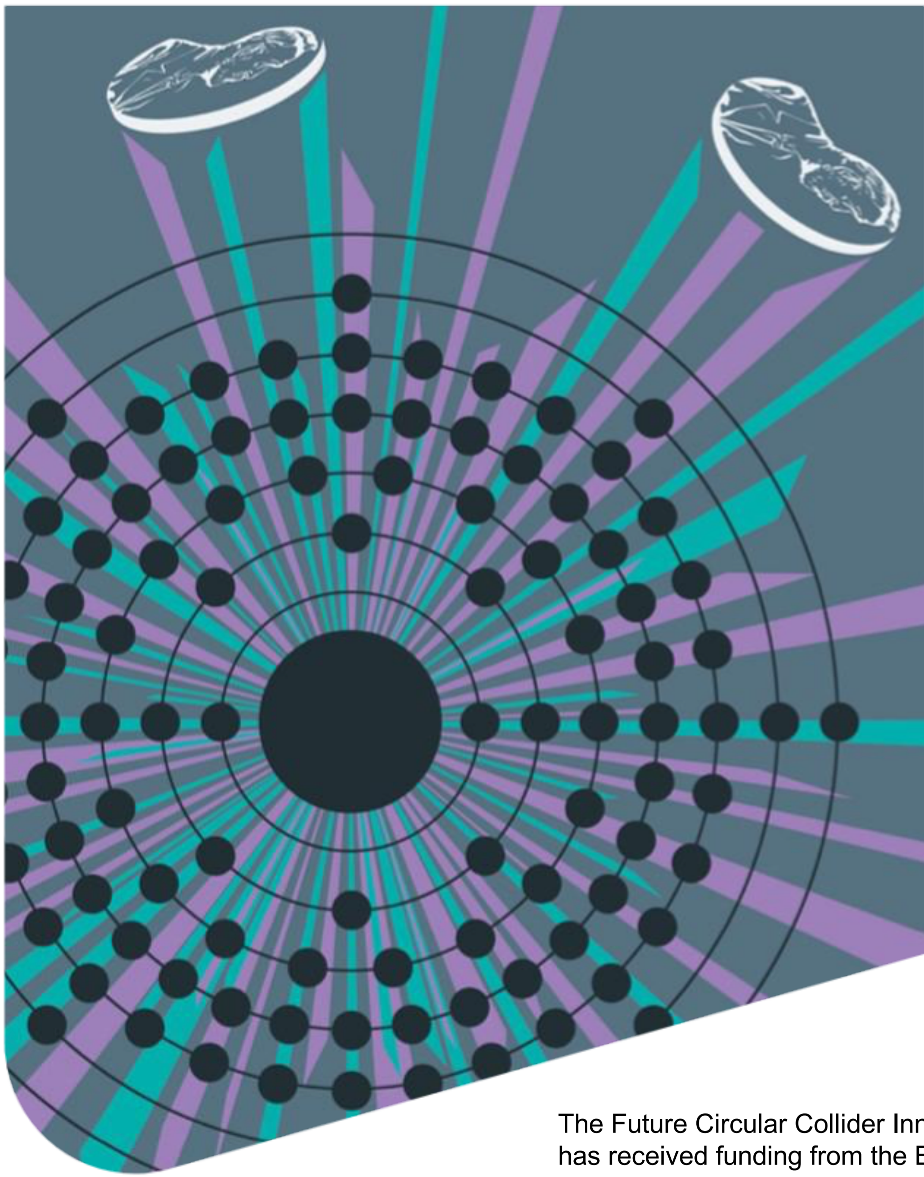
Illustration inspired by the work of Alfred Nobel



From Manuscript to Publication

Process and Data Requirements for a Modern Publication Result

Volker Boeing

FCC week November 2020

ADVANCING DISCOVERY

The Future Circular Collider Innovation Study (FCCIS) project has received funding from the European Union's Horizon 2020 research and innovation programme under grant No 951754.

Overview

- Publication Requirements
- Production Workflows
- XML/LaTeX Solution

Some Findings

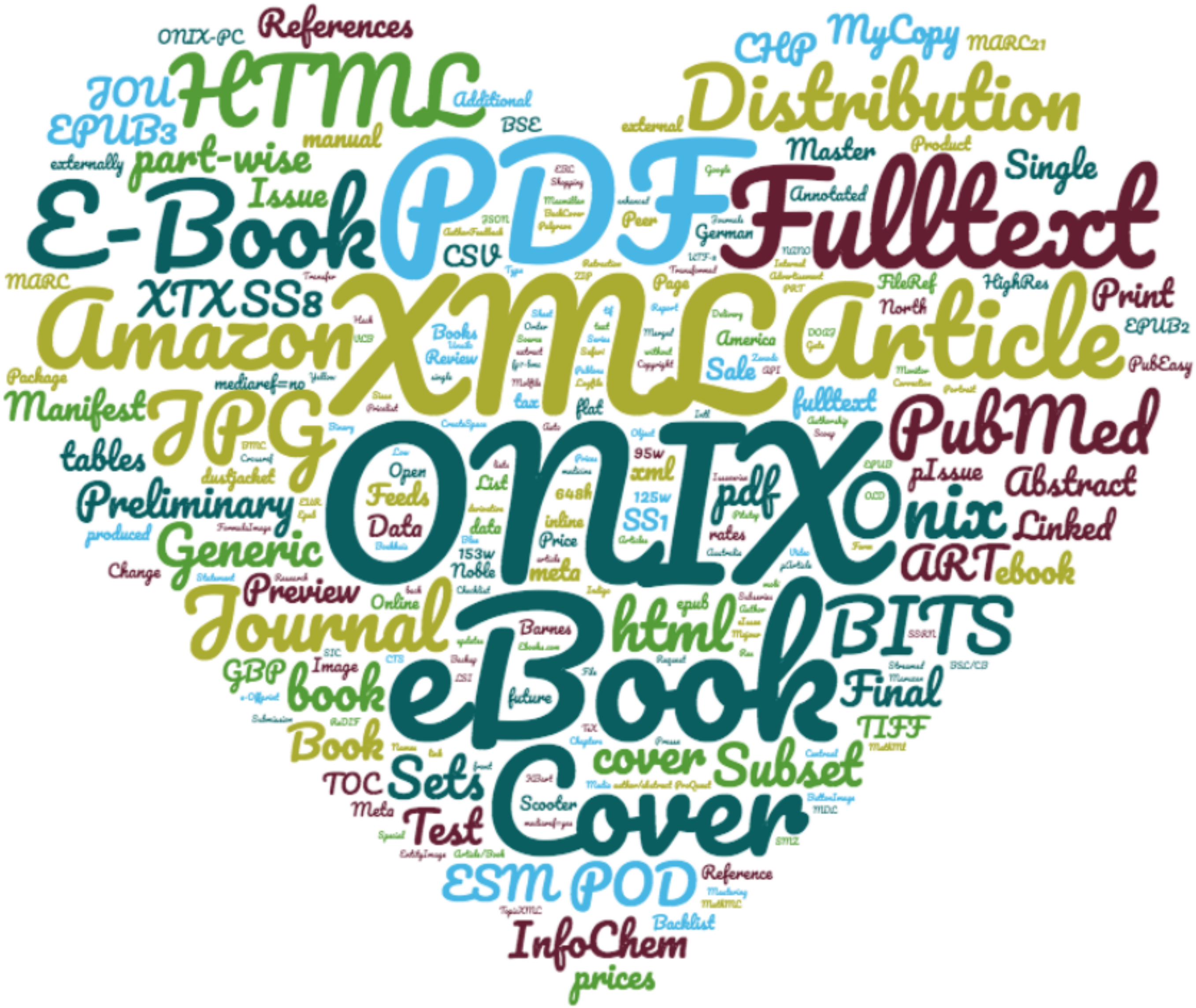
Availability of a rich online version, based on machine readable data, significantly improves findability of an article and increases the average number of downloads.

Text and Datamining relies on structured metadata and full text to be harvested, to allow scientists and data analysts to do their job well.

A PDF only article does not qualify for a modern data retrieval and usage behavior in todays scientific ecosystem.

Time to publication can be decreased tremendously by online editing and collaboration tools.

Multi Channel Publishing



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Open Access | Published: 26 August 2020

Existence results for closed Finsler geodesics via spherical complexities

Stephan Mescher

Calculus of Variations and Partial Differential Equations **59**, Article number: 155 (2020) | Cite this article

Abstract

We apply topological methods and a Lusternik-Schnirelmann-type approach to prove existence results for closed geodesics of Finsler metrics on spheres and projective spaces. The main tool in the proofs are spherical complexities, which

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Sections References

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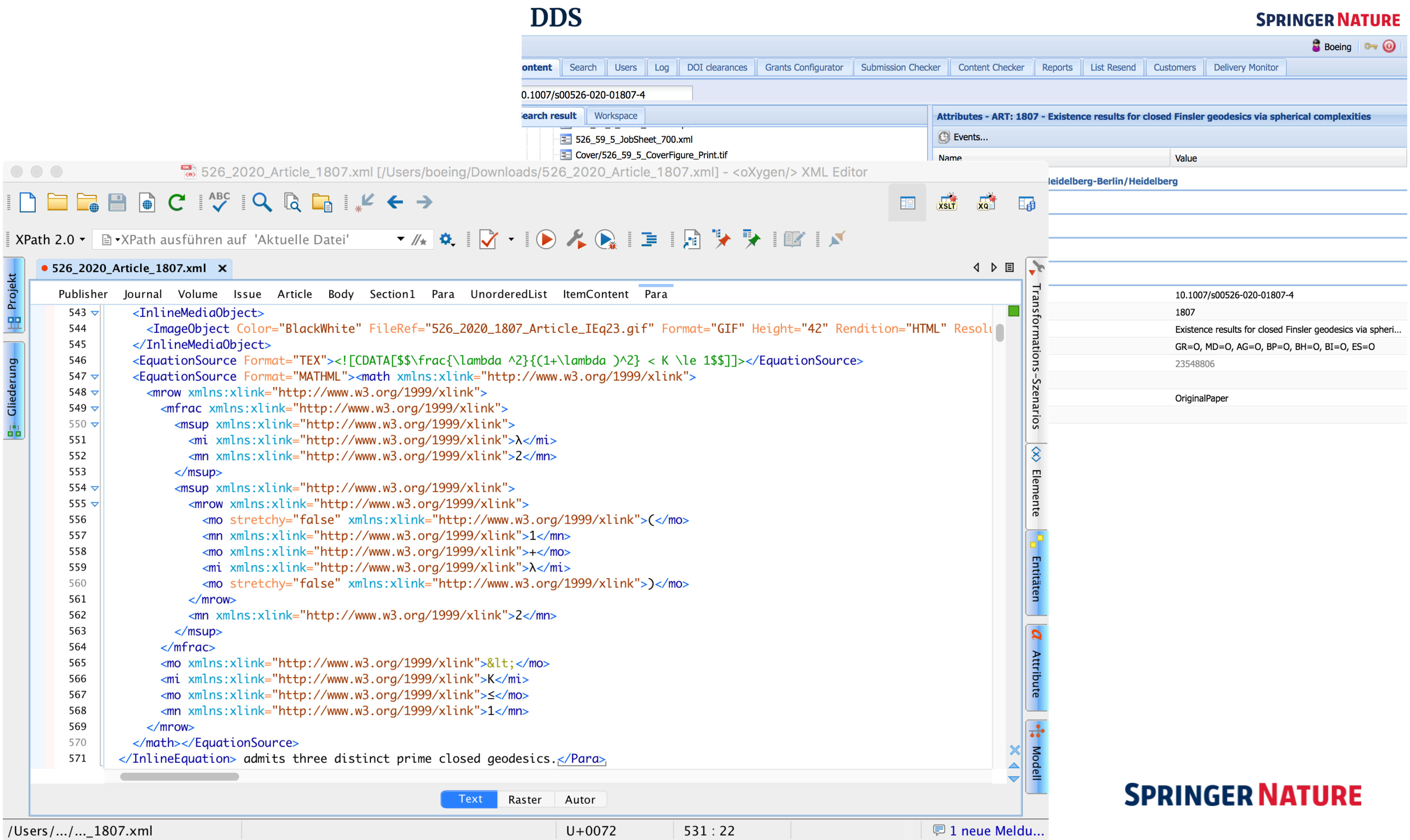
Under the hood …



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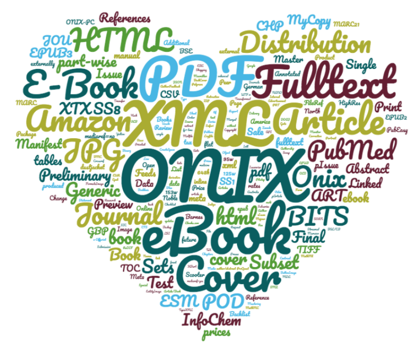
Challenges

Fulltext XML is a requirement from customers, publishers and authors.

Problems arise, when proofing is done only on the PDF and XML is created with hindsight.

TeX based formulas taken over to XML in a normalized way, resulting in layout and even semantic changes of the underlying math.

LaTeX → XML$^{\text{LaTeX}}$ →



Use sentence case

No more than 150 characters, including spaces

The Hsp70 interdomain linker is a dynamic switch that enables allosteric communication between two structured domains

Charles A. English[1], Woody Sherman[1,2,3#], Wenli Meng[1], and Lila M. Gierasch[1,3*]

Use 8.5"x 11" paper

SN eAuthoring INSERT INSERT SECTION CITE

Chapter 1

The coefficients a_{ij} in the system (8) are determined as follows:

$$a_{11}=-\frac{\rho h\omega^2}{L_1},a_{12}=a_{17}=-\frac{1}{K_1}\frac{\partial K_2}{\partial y},a_{13}=a_{18}=-\frac{K_2}{K_1},$$
$$a_{14}=a_{15}=-\frac{1}{K_1}\frac{\partial K_1}{\partial x},a_{16}=-1,$$
$$a_{21}=\frac{K_1}{D_{11}},a_{22}=\frac{1}{D_{11}}(K_1-\rho\frac{h^3}{12}\omega^2),a_{23}=a_{27}=-\frac{1}{D_{11}}\frac{\partial D_{66}}{\partial y},a_{24}=-\frac{D_{66}}{D_{11}};$$
$$a_{25}=-\frac{1}{D_{11}}\frac{\partial D_{11}}{\partial x},a_{26}=-\frac{1}{D_{11}}\frac{\partial D_{12}}{\partial x},a_{28}=-\left(\frac{D_{12}+D_{66}}{D_{11}}\right),$$
$$a_{31}=\frac{K_2}{D_{66}},a_{32}=a_{38}=-\frac{1}{D_{66}}\frac{\partial D_{66}}{\partial x},a_{33}=-\frac{1}{D_{66}}\frac{\partial D_{12}}{\partial y};a_{34}=-\left(\frac{D_{12}+D_{66}}{D_{66}}\right),$$
$$a_{35}=\frac{1}{D_{66}}\left(K_2-\rho\frac{h^3}{12}\omega^2\right),\ a_{36}=-\frac{1}{D_{66}}\frac{\partial D_{22}}{\partial y},\ a_{37}=-\frac{D_{22}}{D_{66}}. \quad (9)$$

The Eq. (8) are supplemented by boundary conditions on the plate edges $x=0,\ x=a,\ y=0,\ y=b$. We will consider the following types of boundary conditions,

(1) all edges of the plate are clamped (boundary conditions of the type A):

$$w=0,\sigma_x=0,\psi_y=0 \quad (10)$$

at $y=0,\ y=b,\ x=0,\ x=a$.

(2) three edges are clamped, the fourth edge is hinged (boundary conditions of the type B):

$$w=0,\frac{\partial\psi_x}{\partial x}=0,\psi_y=0 \text{ at } x=a.$$

(3) two edges are clamped and two others are hinged (boundary conditions of the type C):

Use 2-column format for abstract through experimental procedures.

interdomain allostery. To better understand the role of this region in Hsp70 allostery, we used molecular dynamics simulations to explore the conformational landscape of the DnaK interdomain linker and supported our simulations by strategic experimental data. We found that while the interdomain linker samples many conformations, it behaves as three relatively ordered segments connected by

enables Hsp70 chaperones to facilitate initial folding of newly synthesized proteins, protect substrates from aggregation, and facilitate assembly of complexes. Extensive work using the *E. coli* Hsp70, DnaK, as a model has shown that when Hsp70 chaperones are bound to ADP, their N-terminal nucleotide-binding domain (NBD) is disengaged ('undocked') from the C-terminal substrate-binding domain (SBD), the

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Number all pages

The XML/LaTeX Solution

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DOI: 10.1007/s12312-019-01234-y

Results and discussion

3.1. Structural properties and formation enthalpy

The structural properties of binary compounds AlSb and AlN and their related ternary alloys AlN_xSb_{1-x} with ($x = 0$, 0.25, 0.5, 0.75 and 1) are performed using the GGA–PBEsol approximation in the zinc blende structure, based on Birch–Murnaghan equation of states [34].

$$E(V) = E_0 + \frac{9V_0 B_0}{16}\left\{\left[\left(\frac{V_0}{V}\right)^{2/3} - 1\right]^3 B_0' + \left[\left(\frac{V_0}{V}\right)^{\prime 2/3} - 1\right]^2 \left[6 - 4\left(\frac{V_0}{V}\right)^{2/3}\right]\right\}$$

where E_0 is the equilibrium energy, B_0 and B_0' are the bulk modulus and its pressure derivative. The obtained equilibrium lattice constant, bulk modulus, and pressure derivatives are listed in Table 1 . Our results are in good agreement with both theoretical and experimental data. The calculated lattice parameters (a) for binary compounds are ($a_0 = 6.1574$) for AlSb and ($a_0 = 4.3792$) for AlN, and these results are 0.31 and 0.80% larger than the experimental values [11, 35, 36], respectively, and compatible with the theoretical data [20, 37, 38] and [39, 40, 41, 42, 43]. Moreover, the bulk modulus value of AlSb is 53.5850 GPa, whereas it is 200.404 GPa for AlN, and these results are in good accordance with the experimental values [44, 45, 46].

Table 1

Lattice constant (Å), Bulk modulus (B) and first derivative of the bulk modulus (B') for AlN_xSb_{1-x} alloys ($x = 0$, 0.25, 0.5, 0.75 and 1)

	Lattice constants (Å)	**Bulk modulus B (GPa)**	B'