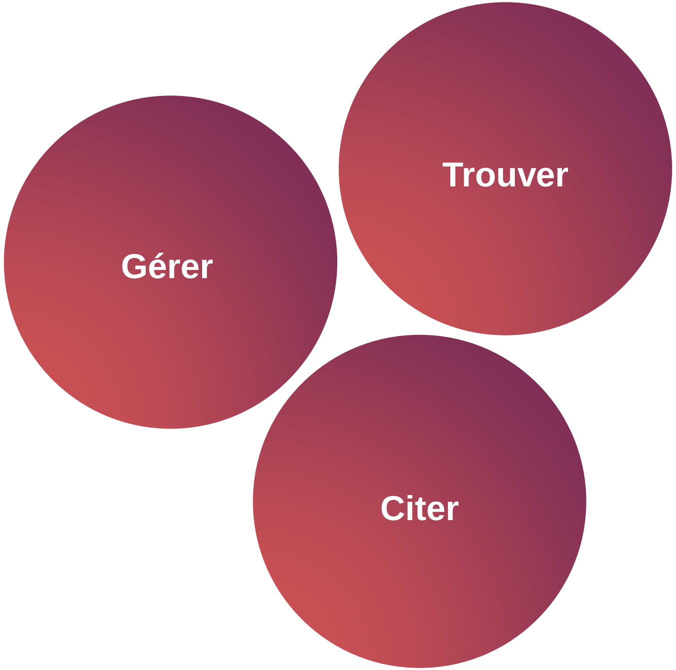
hes·so ingenious.

Revue de littérature: recherche & outils

> Objet du cours



- **Trouver** la littérature en relation avec une problématique donnée

  (GoogleScholar, SementicScholar..)

- **Gérer** la bibliographie trouvée grâce au outils de référencement

  (EndNote, Zotero, Mendeley..)

- **Citer** les articles dans le rapport et générer une table de référence

  (Word, Latex..)

> Comprendre l'organisation des papiers

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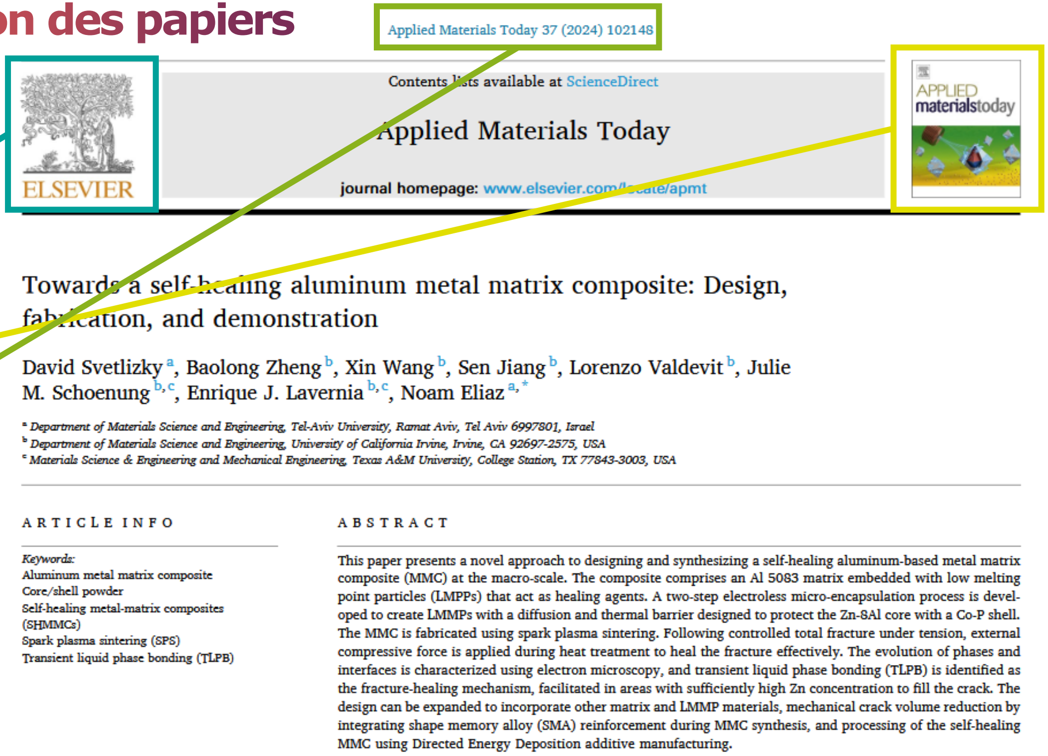

Applied Materials Today 37 (2024) 102148

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Towards a self-healing aluminum metal matrix composite: Design, fabrication, and demonstration

David Svetlizky [a], Baolong Zheng [b], Xin Wang [b], Sen Jiang [b], Lorenzo Valdevit [b], Julie M. Schoenung [b,c], Enrique J. Lavernia [b,c], Noam Eliaz [a,*]

[a] Department of Materials Science and Engineering, Tel-Aviv University, Ramat Aviv, Tel Aviv 6997801, Israel
[b] Department of Materials Science and Engineering, University of California Irvine, Irvine, CA 92697-2575, USA
[c] Materials Science & Engineering and Mechanical Engineering, Texas A&M University, College Station, TX 77843-3003, USA

ARTICLE INFO

Keywords:
Aluminum metal matrix composite
Core/shell powder
Self-healing metal-matrix composites (SHMMCs)
Spark plasma sintering (SPS)
Transient liquid phase bonding (TLPB)

ABSTRACT

This paper presents a novel approach to designing and synthesizing a self-healing aluminum-based metal matrix composite (MMC) at the macro-scale. The composite comprises an Al 5083 matrix embedded with low melting point particles (LMPPs) that act as healing agents. A two-step electroless micro-encapsulation process is developed to create LMMPs with a diffusion and thermal barrier designed to protect the Zn-8Al core with a Co-P shell. The MMC is fabricated using spark plasma sintering. Following controlled total fracture under tension, external compressive force is applied during heat treatment to heal the fracture effectively. The evolution of phases and interfaces is characterized using electron microscopy, and transient liquid phase bonding (TLPB) is identified as the fracture-healing mechanism, facilitated in areas with sufficiently high Zn concentration to fill the crack. The design can be expanded to incorporate other matrix and LMMP materials, mechanical crack volume reduction by integrating shape memory alloy (SMA) reinforcement during MMC synthesis, and processing of the self-healing MMC using Directed Energy Deposition additive manufacturing.

Ramification: Editeur, Journal, Volume, Issue, Année, Numéro d'article, Page

Trouver

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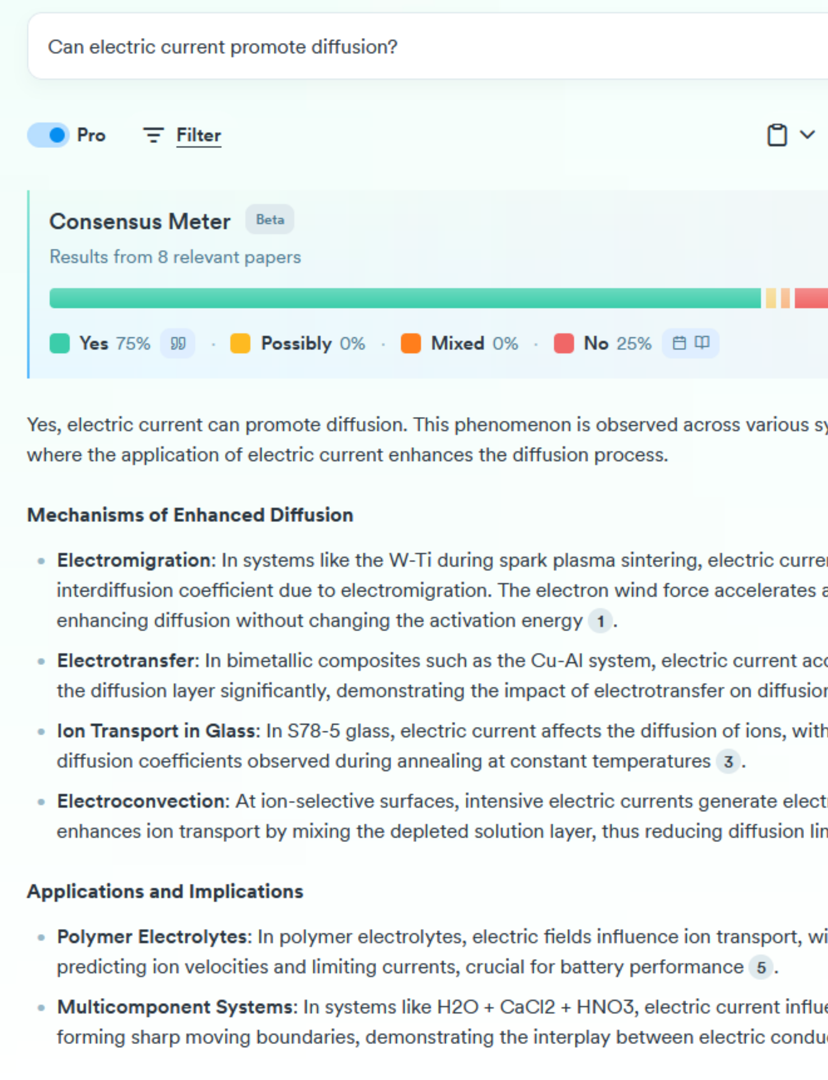

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> Analyse rapide

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1. Le titre
2. Les mots clés
3. L'abstract
4. Les figures
5. La conclusion

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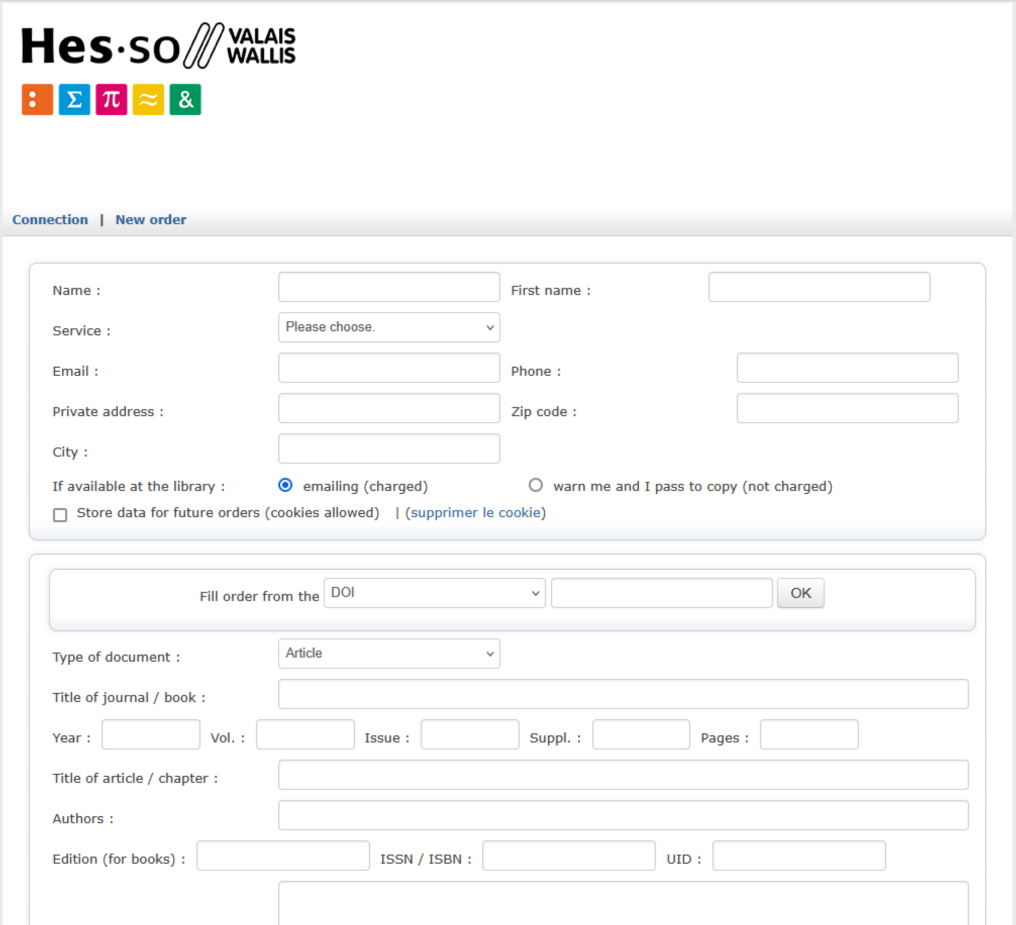

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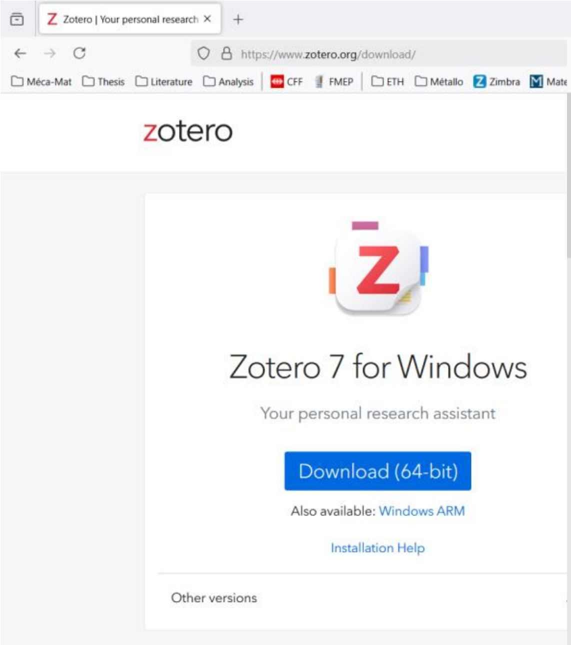
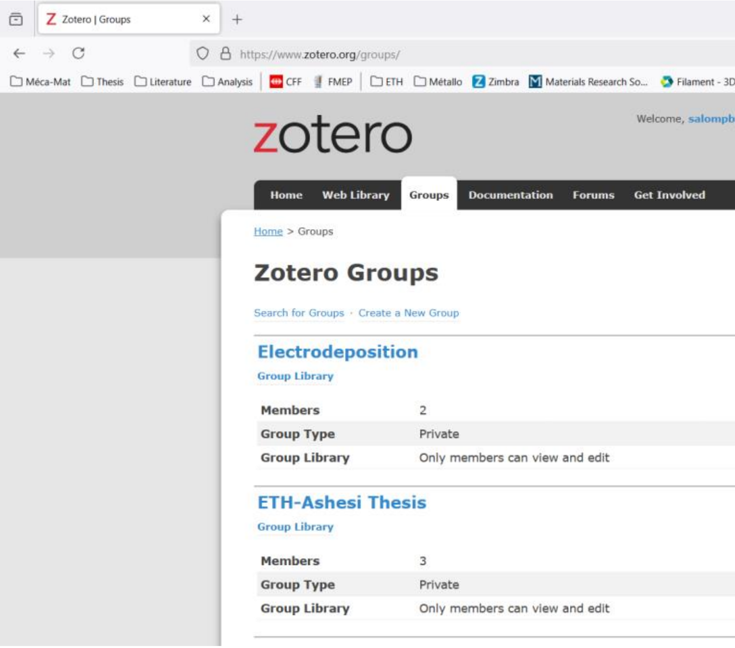
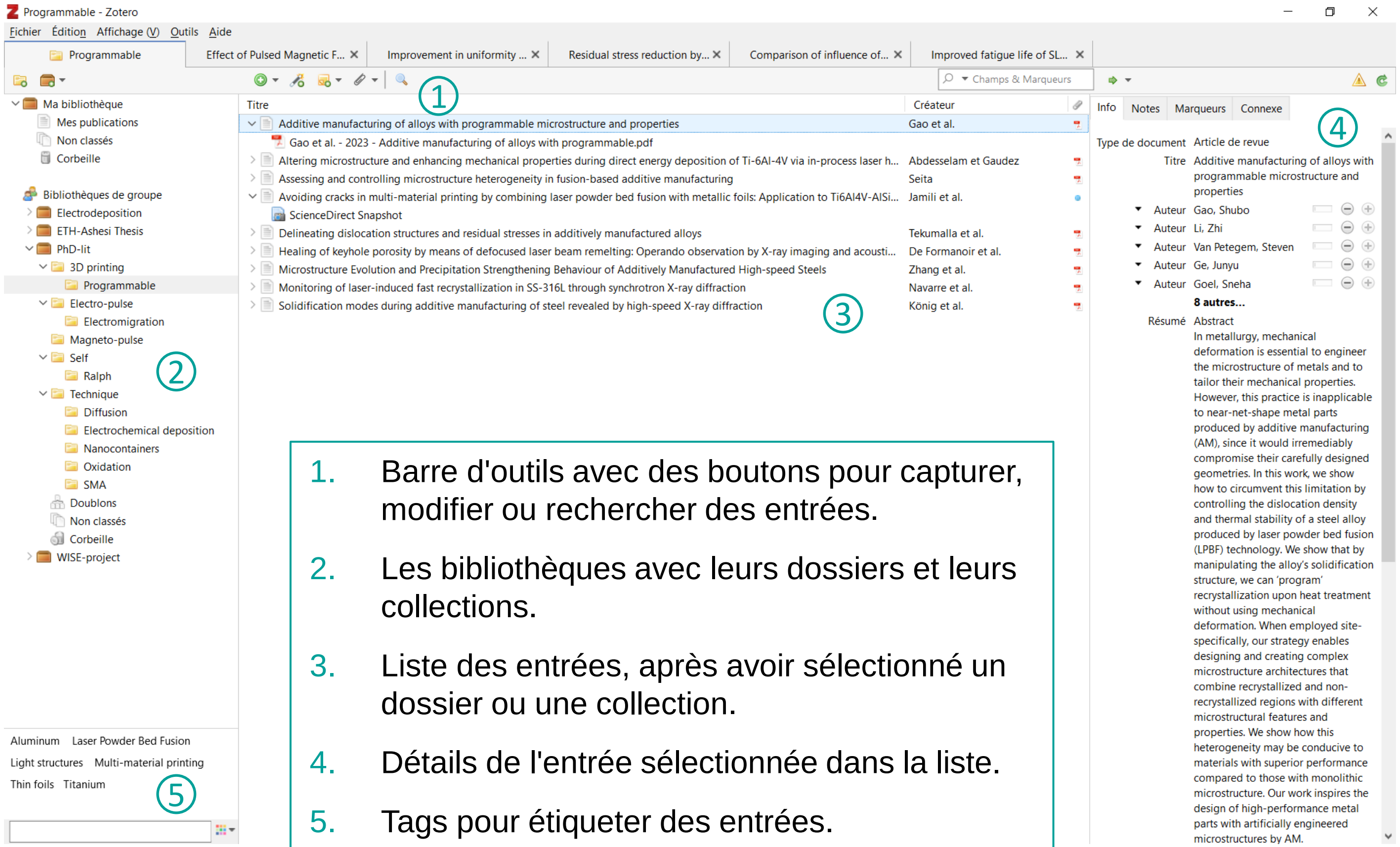




<u>Installer</u>

- Le logiciel
- Le connecteur
- Le plugin (automatique)

Gérer



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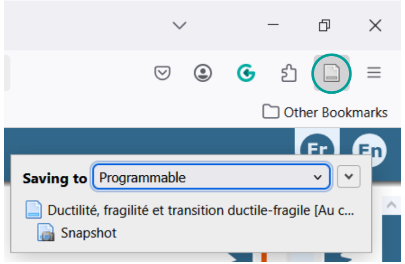
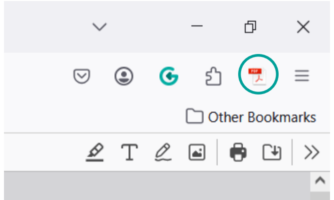
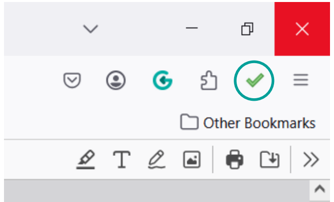
2. Les bibliothèques avec leurs dossiers et leurs collections.
3. Liste des entrées, après avoir sélectionné un dossier ou une collection.
4. Détails de l'entrée sélectionnée dans la liste.
5. Tags pour étiqueter des entrées.

> Ajouter des documents







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- L'application doit être ouverte!!
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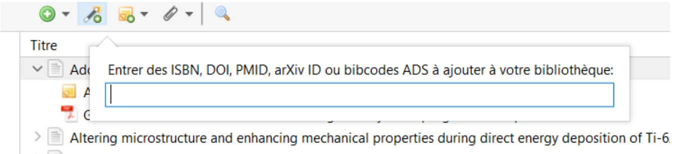

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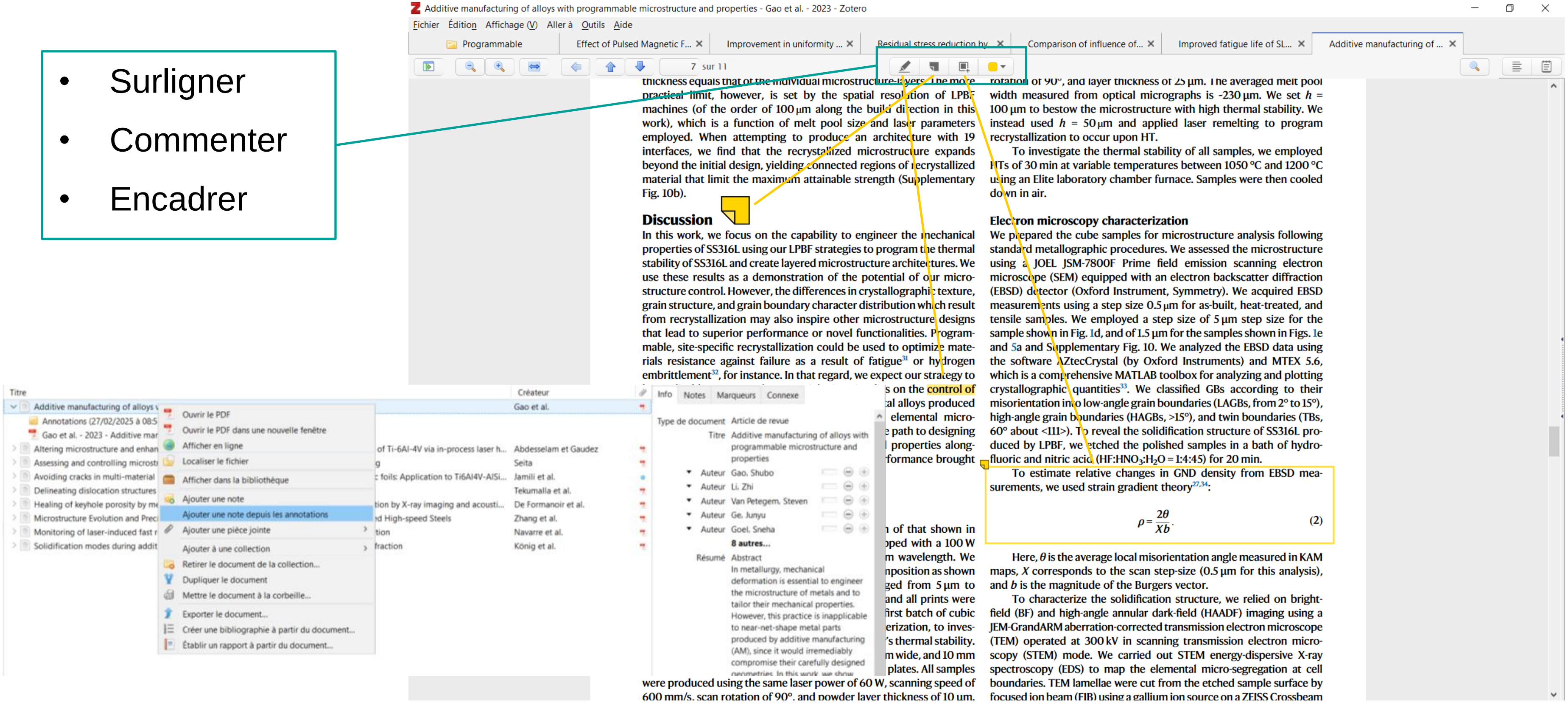
> Lire et annoter

- Surligner
- Commenter
- Encadrer



> Référencement dans le rapport

- Insert note quote une annotation
- Add citation reference l'annotation ou le texte sélectionné
- Add bibliography crée la table de reference à partir des citations