

Weekly Status Report

WEEK 2

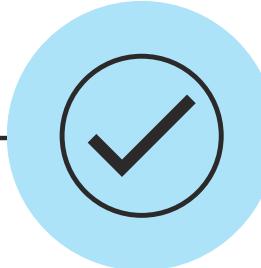
UGP1 | MSE 496



Major Goals

 **DONE**

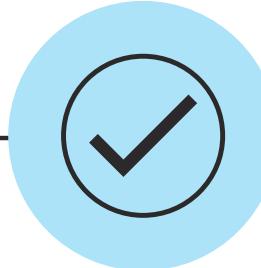
 **ONGOING**



01

CREATION OF DATABASE

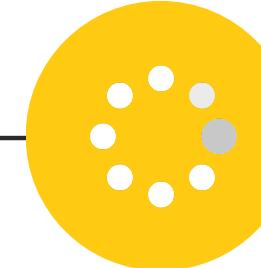
To scrape the ALD database and retrieve a JSON object with references and processes to construct the final database.



02

DOWNLOADING PAPERS

To download the relevant papers from their DOI (Digital Object Identifiers) and download the same for downstream tasks.



03

COMPLETION

To complete the database and perform the required downstream tasks.

Goal # 1

DATABASE
CONSTRUCTION



GENERAL STATUS

NETWORK REQUESTS FROM THE WEBSITE

The screenshot shows a web browser window with the URL `atomiclimits.com/alddatabase/`. The main content is a periodic table where specific elements (Pd and B) have a color-coded overlay, indicating they are being processed or highlighted. The DevTools Network tab is active, showing the following network requests:

Name	Status	Type	Initiator	Size	Time
visitors.php	200	xhr	2.fd70eab1.chunk.js:sourcemap:1	0.2 kB	208 ms
processes.php	200	xhr	2.fd70eab1.chunk.js:sourcemap:1	217 kB	3.20 s

At the bottom of the DevTools interface, there is a "What's new" section for DevTools 144, which includes a link to "What's new in DevTools 144".

2 / 10 requests | 217 kB / 366 kB transferred | 2,155 kB / 2,976 kB resources | Finish: 3.65 s | DOMContentLoaded: 461 ms | Load: 465 ms

Console What's new X AI assistance Issues

What's new in DevTools 144

API ENDPOINTS OF THE WEBSITE

Index of /alddatabase/api

Name	Last modified	Size	Description
----------------------	-------------------------------	----------------------	-----------------------------

Parent Directory	-		
approve.php	2021-01-24 04:12	1.4K	
approveAll.php	2021-01-24 04:12	909	
comments.php	2021-01-24 04:12	2.0K	
contributors.php	2021-01-24 04:12	1.4K	
fillDOI.php	2021-01-24 04:12	2.1K	
keys.php	2019-05-02 10:52	129	
processes.php	2021-01-24 04:12	7.5K	
publicKeys.php	2021-01-24 04:12	106	
references.php	2021-01-24 04:12	3.7K	
removeAll.php	2021-01-24 04:12	924	
visitors.php	2021-01-24 04:12	1.4K	

Apache/2.4.41 (Ubuntu) Server at www.atomiclimits.com Port 443

[HTTPS://WWW.ATOMICLIMITS.COM/ALDDATABASE/API/](https://www.atomiclimits.com/alddatabase/api/)

PHP FILE FOR PROCESSES AND REFERENCES

```
{"success":true,"references":[{"reference_id":"2205","process_id":"429","reference_doi":"10.3938\jkps.45.1249","reference_created":"0000-00-00","reference_author":"Jeong","reference_citations":"0","reference_contributor":"Jan Buiter","reference_reviewed":"1","EntrySubmitted":"2019-12-03 08:10:55","reference_fullAuthorList":"failed"}, {"reference_id":"2207","process_id":"429","reference_doi":"10.1002\1521-3862(200011)6:6<303::AID-CVDE303>3.0.CO;2-J","reference_created":"0000-00-00","reference_author":"Kukli","reference_citations":"0","reference_contributor":"Jan Buiter","reference_reviewed":"1","EntrySubmitted":"2019-12-03 08:10:55","reference_fullAuthorList":"Kukli Ritala Schuisky Leskel\u00e4 Sajavaara Keinonen Uustare Hu00e5rsta "}, {"reference_id":"2249","process_id":"461","reference_doi":"10.1002\JKPS(1521-3862(199801)04:01<9::AID-CVDE9>3.0.CO;2-3","reference_created":"0000-00-00","reference_author":"Kukli","reference_citations":"0","reference_contributor":"Jan Buiter","reference_reviewed":"1","EntrySubmitted":"2019-12-03 08:10:55","reference_fullAuthorList":"Gilmer Colombo Taylor Roberts Campbell Kim Wilk Gribelyuk Gladfelter"}, {"reference_id":"2401","process_id":"520","reference_doi":"10.3938\jkps.34.25","reference_created":"0000-00-00","reference_author":"Lee","reference_citations":"0","reference_contributor":"Jan Buiter","reference_reviewed":"1","EntrySubmitted":"2019-12-03 08:10:55","reference_fullAuthorList":"Price Parkin Hibbert Molloy "}, {"reference_id":"2512","process_id":"601","reference_doi":"10.3938\jkps.47.501","reference_created":"0000-00-00","reference_author":"Koo","reference_citations":"0","reference_contributor":"Jan Buiter","reference_reviewed":"1","EntrySubmitted":"2019-12-03 08:10:55","reference_fullAuthorList":"failed"}, {"reference_id":"2513","process_id":"601","reference_doi":"10.3938\jkps.46.945","reference_created":"0000-00-00","reference_author":"Koo","reference_citations":"0","reference_contributor":"Jan Buiter","reference_reviewed":"1","EntrySubmitted":"2019-12-03 08:10:55","reference_fullAuthorList":"failed"}, {"reference_id":"2550","process_id":"601","reference_doi":"10.3938\jkps.42.272","reference_created":"0000-00-00","reference_author":"Lee","reference_citations":"0","reference_contributor":"Jan Buiter","reference_reviewed":"1","EntrySubmitted":"2019-12-03 08:10:55","reference_fullAuthorList":"failed"}, {"reference_id":"2572","process_id":"601","reference_doi":"10.3938\jkps.46.52","reference_created":"0000-00-00","reference_author":"Jin","reference_citations":"0","reference_contributor":"Jan Buiter","reference_reviewed":"1","EntrySubmitted":"2019-12-03 08:10:55","reference_fullAuthorList":"failed"}, {"reference_id":"2819","process_id":"674","reference_doi":"10.3938\jkps.35.216","reference_created":"0000-00-00","reference_author":"Kim","reference_citations":"0","reference_contributor":"Jan Buiter","reference_reviewed":"1","EntrySubmitted":"2019-12-03 08:10:55","reference_fullAuthorList":"failed"}, {"reference_id":"2894","process_id":"712","reference_doi":"10.3938\jkps.45.1069","reference_created":"0000-00-00","reference_author":"Kim","reference_citations":"0","reference_contributor":"Jan Buiter","reference_reviewed":"1","EntrySubmitted":"2019-12-03 08:10:55","reference_fullAuthorList":"failed"}, {"reference_id":"40","process_id":"40","reference_doi":"10.3938\jkps.48.131","reference_created":"0000-00-00","reference_author":"Koo","reference_citations":"0","reference_contributor":"Jan Buiter","reference_reviewed":"1","EntrySubmitted":"2019-12-03 08:10:55","reference_fullAuthorList":"failed"}, {"reference_id":"119","process_id":"119","reference_doi":"10.3938\jkps.45.1352","reference_created":"0000-00-00","reference_author":"Lee","reference_citations":"0","reference_contributor":"Jan Buiter","reference_reviewed":"1","EntrySubmitted":"2019-12-03 08:10:55","reference_fullAuthorList":"failed"}, {"reference_id":"194","process_id":"194","reference_doi":"10.1002\JKPS(1521-3862(199901)5:1<7::AID-CVDE7>3.0.CO;2-J","reference_created":"0000-00-00","reference_author":"Ritala","reference_citations":"0","reference_contributor":"Jan Buiter","reference_reviewed":"1","EntrySubmitted":"2019-12-03 08:10:55","reference_fullAuthorList":"Ritala Leskel\u00e4 Dekker Mutsaers Soininen Skarp "}, {"reference_id":"348","process_id":"348","reference_doi":"10.1002\1521-396X(200112)188:2<673::AID-PSSA673>3.0.CO;2-3","reference_created":"0000-00-00","reference_author":"Adelmann","reference_citations":"0","reference_contributor":"Jan Buiter","reference_reviewed":"1","EntrySubmitted":"2019-12-03 08:10:55","reference_fullAuthorList":"Adelmann Martinez-Guerrero Barjon Brault Si Dang Mariette Mula Daudin "}, {"reference_id":"383","process_id":"383","reference_doi":"10.1002\1521-3862(200103)7:2<75::AID-CVDE75>3.0.CO;2-B","reference_created":"0000-00-00","reference_author":"Vehkam\u00e4ki","reference_citations":"0","reference_contributor":"Jan Buiter","reference_reviewed":"1","EntrySubmitted":"2019-12-03 08:10:55","reference_fullAuthorList":"Vehkam\u00e4ki H\u00e4nninen Ritala Leskel\u00e4 Sajavaara Rauhala Keinonen "}, {"reference_id":"536","process_id":"536","reference_doi":"10.3938\jkps.46.756","reference_created":"0000-00-00","reference_author":"Lee","reference_citations":"0","reference_contributor":"Jan Buiter","reference_reviewed":"1","EntrySubmitted":"2019-12-03 08:10:55","reference_fullAuthorList":"failed"}, {"reference_id":"561","process_id":"561","reference_doi":"10.3938\jkps.49.1243","reference_created":"0000-00-00","reference_author":"Lee","reference_citations":"0","reference_contributor":"Jan Buiter","reference_reviewed":"1","EntrySubmitted":"2019-12-03 08:10:55","reference_fullAuthorList":"failed"}, {"reference_id":"709","process_id":"709","reference_doi":"10.3938\jkps.45.1069","reference_created":"0000-00-00","reference_author":"Kim","reference_citations":"0","reference_contributor":"Jan Buiter","reference_reviewed":"1","EntrySubmitted":"2019-12-03 08:10:55","reference_fullAuthorList":"failed"}, {"reference_id":"793","process_id":"19","reference_doi":"10.3938\jkps.33.170","reference_created":"0000-00-00","reference_author":"Yun","reference_citations":"0","reference_contributor":"Jan Buiter","reference_reviewed":"1","EntrySubmitted":"2019-12-03 08:10:55","reference_fullAuthorList":"failed"}, {"reference_id":"796","process_id":"19","reference_doi":"10.3938\jkps.35.216","reference_created":"0000-00-00","reference_author":"Kim","reference_citations":"0","reference_contributor":"Jan Buiter","reference_reviewed":"1","EntrySubmitted":"2019-12-03 08:10:55","reference_fullAuthorList":"failed"}, {"reference_id":"891","process_id":"25","reference_doi":"10.3938\jkps.47.501","reference_created":"0000-00-00","reference_author":"Koo","reference_citations":"0","reference_contributor":"Jan Buiter","reference_reviewed":"1","EntrySubmitted":"2019-12-03 08:10:55","reference_fullAuthorList":"failed"}, {"reference_id":"892","process_id":"25","reference_doi":"10.3938\jkps.46.945","reference_created":"0000-00-00","reference_author":"Koo","reference_citations":"0","reference_contributor":"Jan Buiter","reference_reviewed":"1","EntrySubmitted":"2019-12-03 08:10:55","reference_fullAuthorList":"failed"}, {"reference_id":"1099","process_id":"26","reference_doi":"10.3938\jkps.49.1271","reference_created":"0000-00-00","reference_author":"Kim","reference_citations":"0","reference_contributor":"Jan Buiter","reference_reviewed":"1","EntrySubmitted":"2019-12-03 08:10:55","reference_fullAuthorList":"failed"}, {"reference_id":"1148","process_id":"29","reference_doi":"10.3938\jkps.42.975","reference_created":"0000-00-00","reference_author":"Choi","reference_citations":"0","reference_contributor":"Jan Buiter","reference_reviewed":"1","EntrySubmitted":"2019-12-03 08:10:55","reference_fullAuthorList":"failed"}]}
```

[HTTPS://WWW.ATOMICLIMITS.COM/ALDDATABASE/API/PROCESSES.PHP](https://www.atomiclimits.com/alddatabase/api/processes.php)

PYTHON CODE TO FETCH THIS DATA

```
url = "https://www.atomiclimits.com/alddatabase/api/processes.php"
html = requests.get(url, headers=headers).text
soup = BeautifulSoup(html, "lxml")
|



def get_responses():
    ...
    func, get_responses: no input -> returns json of references,processes.
    ...



url = "https://www.atomiclimits.com/alddatabase/api/processes.php"
html = requests.get(url, headers=headers).text
soup = BeautifulSoup(html, "lxml")

data = json.loads(html)
references = data["references"]
processes = data["processes"]

return references,processes
```

Goal # 2

**DOWNLOADING
PAPERS**



GENERAL STATUS

USING DOI + ELSEVIER API

Find text or tools Share Ask AI Assistant

ATOMIC LAYER EPITAXY OF CdTe ON THE POLAR (111)A AND (111)B SURFACES OF CdTe SUBSTRATES

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Atomic Layer Epitaxy (ALE) has been used to grow CdTe single crystal layers of high structural perfection from elemental cadmium and tellurium on the polar (111)A and (111)B surfaces of p-type CdTe substrates at the temperatures of 510 and 540 K. It is likely that the films grow strictly via monoatomic layer-by-layer stacking according to an ideal growth mode proposed.

1. Introduction

Optoelectronic devices, such as heterojunction lasers, solar cells and monolithic infrared image sensors requires compound semiconductor materials which possess high structural perfection. This perfection can be achieved by crystallizing properly the chosen semiconductors in the form of thin epitaxial layers. The most flexible and precise technique used at present in tailoring the electronic and optical properties of compound semiconductor films for desired device functions is the Molecular Beam Epitaxy (MBE) method [1].

A new method called Atomic Layer Epitaxy (ALE), related to MBE in some respects, has been developed for fabricating II-VI compound semiconductor films [2-4]. In ALE, the growth rate and layer composition are controlled by the growth itself. ALE growth is based on chemical reactions occurring at relatively low temperatures in the surface of a substrate to which the reactants are alternately transported as vapor pulses or molecular beam bunches. The layers are supposed to grow stepwise. There is no need for a close control

the MBE, because the layer composition in ideal ALE growth is independent of excess incident molecules.

Among II-VI compounds, cadmium telluride is of considerable interest because of its potential applications in the areas of optoelectronics, integrated optics and solar energy conversion. Furthermore, its close lattice match and chemical compatibility with the $Hg_{1-x}Cd_xTe$ ternary compound make CdTe an ideal substrate for growth of this variable bandgap infrared detector material [5]. It is also possible to use heteroepitaxial layers of CdTe deposited onto $Hg_{1-x}Cd_xTe$ substrates for surface passivation and preventing a depletion of mercury in the production process of $Hg_{1-x}Cd_xTe$ photovoltaic detectors [6].

We have shown in a recent paper [7] that single crystal CdTe films can be grown on non-polar CdTe (110) substrates by using ALE. In the present paper we report on an attempt to grow CdTe layers on the polar surfaces (111)A and (111)B of p-type CdTe substrates using ALE.

ONLY THE FRONT
PAGE IS
DOWNLAODED DUE TO
LIMITED
INSTITUTIONAL
ACCESS

BEYOND LEGAL METHODS



SCI HUB TO DOWNLOAD PDFS

The screenshot shows the Sci-Hub homepage with a search bar containing "wellesu.com". The main content area displays search results and site statistics.

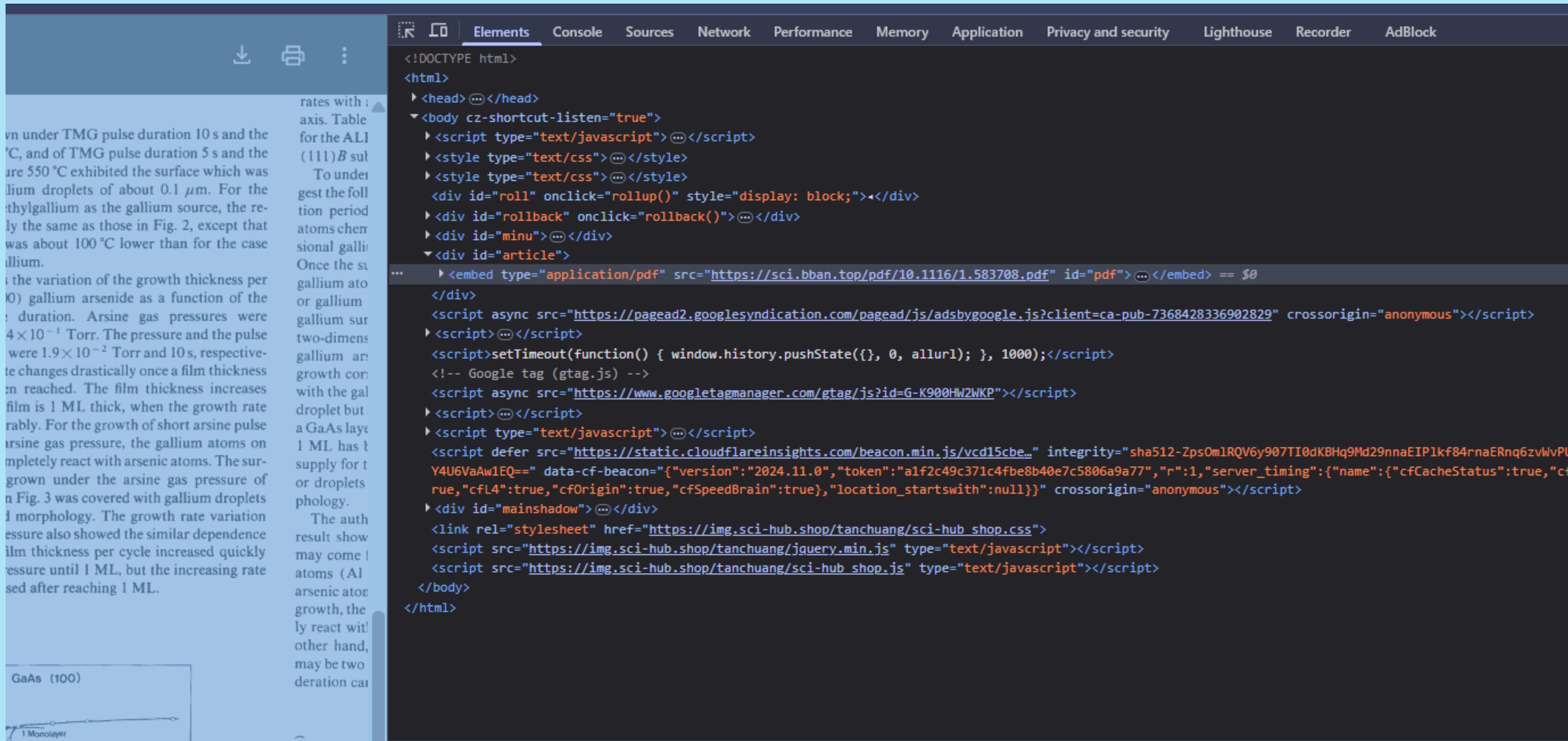
Search Results:

- language:** English 简体中文 Русский Português
- mirrors:** sci-hub.shop sci-hub.vg sci-hub.al see all →
- total docs:** 88,343,822
- users in 1h:** 37
- latest read:** Highly Atom-Efficient Oxidation of Electron-Deficient Internal Olefins to Ketones Using a Palladium Catalyst / Angewandte Chemie International Edition. Mitsudome, Takato; Yoshida, Syuhei; Mizugaki, Tomoo; Jitsukawa, Koichiro; Kaneda, Kiyotomi
- latest reads:**
 - 10:00:47 Highly Atom-Efficient Oxidation of Electron-Deficient Internal Olefins to Ketones Using a Palladium Catalyst / Angewandte Chemie International Edition Mitsudome, Takato; Yoshida, Syuhei; Mizugaki, Tomoo; Jitsukawa, Koichiro; Kaneda, Kiyotomi , 2013
 - 10:00:47 Anion-responsive poly(ionic liquid)s gating membranes with tunable hydrodynamic permeability / ACS Applied Materials & Interfaces Zhang, Xiang; Xu, Sheng; Zhou, Jukai; Zhao, Weifeng; Sun, Shudong; Zhao, Changsheng , 2017
 - 10:00:47 ECS Transactions [ECS 216th ECS Meeting - Vienna, Austria (October 4 - October 9, 2009)] - The Effect Of Humidity On Titanium Dioxide Photocatalysed PVC Degradation / Cashmore, Samantha; Robinson, Andrew; Worsley, David , 2010
 - 10:00:47 Combining vascular targeting and the local first pass provides 100-fold higher uptake of ICAM-1-targeted vs untargeted nanocarriers in the inflamed brain / Journal of Controlled Release Marcos-Contreras, Oscar A.; Brenner, Jacob S.; Kiseleva, Raisa Y.; Zuluaga-Ramirez, Viviana; Greineder, Colin F.; Villa, Carlos H.; Hood, Elizabeth D.; Myerson, Jacob W.; Muro, Silvia; Persidsky, Yuri; Muzykantov, Vladimir R. , 2019
 - 10:00:47 The Mediating Effect of Self-Acceptance in the Relationship Between Mindfulness and Peace of Mind / Mindfulness Xu, Wei; Rodriguez, Marcus A.; Zhang, Qian; Liu, Xinghua , 2015

Site Navigation and Statistics:

- Logo:** sci-hub logo with a horse head icon.
- Search Bar:** enter your reference
- Open Button:** red button with white key icon and text "open"
- Motto:** emancipation and democratisation of knowledge
- Links:** database, about, Elbakyan, stats, donate

SCI HUB TO DOWNLOAD PDFS



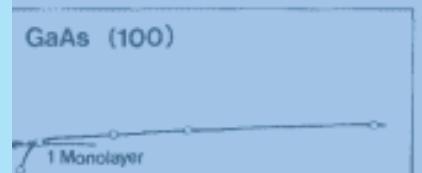
The screenshot shows a web browser window with the developer tools open, specifically the Elements tab. The page content is displayed on the left, and the browser's source code is shown on the right.

Page Content (Left):

vn under TMG pulse duration 10 s and the
°C, and of TMG pulse duration 5 s and the
ure 550 °C exhibited the surface which was
lum droplets of about 0.1 μm. For the
thylgallium as the gallium source, the re-
ly the same as those in Fig. 2, except that
was about 100 °C lower than for the case
llium.
the variation of the growth thickness per
0) gallium arsenide as a function of the
duration. Arsine gas pressures were
 4×10^{-1} Torr. The pressure and the pulse
were 1.9×10^{-2} Torr and 10 s, respective-
changes drastically once a film thickness
reached. The film thickness increases
film is 1 ML thick, when the growth rate
rably. For the growth of short arsine pulse
rsine gas pressure, the gallium atoms on
completely react with arsenic atoms. The sur-
grown under the arsine gas pressure of
n Fig. 3 was covered with gallium droplets
d morphology. The growth rate variation
essure also showed the similar dependence
ilm thickness per cycle increased quickly
essure until 1 ML, but the increasing rate
sed after reaching 1 ML.

Diagram (Bottom Left):

GaAs (100)



Code Dump (Right):

```
<!DOCTYPE html>
<html>
  <head>...</head>
  <body cz-shortcut-listen="true">
    <script type="text/javascript">...</script>
    <style type="text/css">...</style>
    <style type="text/css">...</style>
    <div id="roll" onclick="rollup()" style="display: block;">...</div>
    <div id="rollback" onclick="rollback()">...</div>
    <div id="minu">...</div>
    <div id="article">...
      <embed type="application/pdf" src="https://sci.bban.top/pdf/10.1116/1.583708.pdf" id="pdf">...</embed> == $0
    </div>
    <script async src="https://pagead2.googlesyndication.com/pagead/js/adsbygoogle.js?client=ca-pub-7368428336902829" crossorigin="anonymous"></script>
    <script>...</script>
    <script>setTimeout(function() { window.history.pushState({}, 0, allurl); }, 1000);</script>
    <!-- Google tag (gtag.js) -->
    <script async src="https://www.googletagmanager.com/gtag/js?id=G-K900HW2WKP"></script>
    <script>...</script>
    <script type="text/javascript">...</script>
    <script defer src="https://static.cloudflareinsights.com/beacon.min.js/vcd15cbe..." integrity="sha512-Zps0m1RQV6y907TI0dKbHq9Md29nnaEIP1kf84rnaERnq6zvWvPUY4U6VaAw1EQ==" data-cf-beacon="{"version":"2024.11.0","token":"a1f2c49c371c4fbe8b40e7c5806a9a77","r":1,"server_timing":{"name":{"cfCacheStatus":true,"cfTrue","cfL4":true,"cfOrigin":true,"cfSpeedBrain":true},"location_startswith":null}}" crossorigin="anonymous"></script>
    <div id="mainshadow">...</div>
    <link rel="stylesheet" href="https://img.sci-hub.shop/tanchuang/sci-hub_shop.css">
    <script src="https://img.sci-hub.shop/tanchuang/jquery.min.js" type="text/javascript"></script>
    <script src="https://img.sci-hub.shop/tanchuang/sci-hub_shop.js" type="text/javascript"></script>
  </body>
</html>
```

PYTHON CODE TO DOWNLOAD PAPERS

```
def save2pdf(doi: str):
    base_url = f"https://wellesu.com/{doi}"

    try:
        resp = requests.get(base_url, headers=HEADERS, timeout=20)
        resp.raise_for_status()

        if "application/pdf" in (resp.headers.get("Content-Type") or ""):
            pdf_bytes = resp.content

        else:
            soup = BeautifulSoup(resp.text, "lxml")
            pdf_url = None

            embed = soup.find("embed", {"type": "application/pdf"})
            if embed and embed.get("src"):
                pdf_url = embed["src"]
```

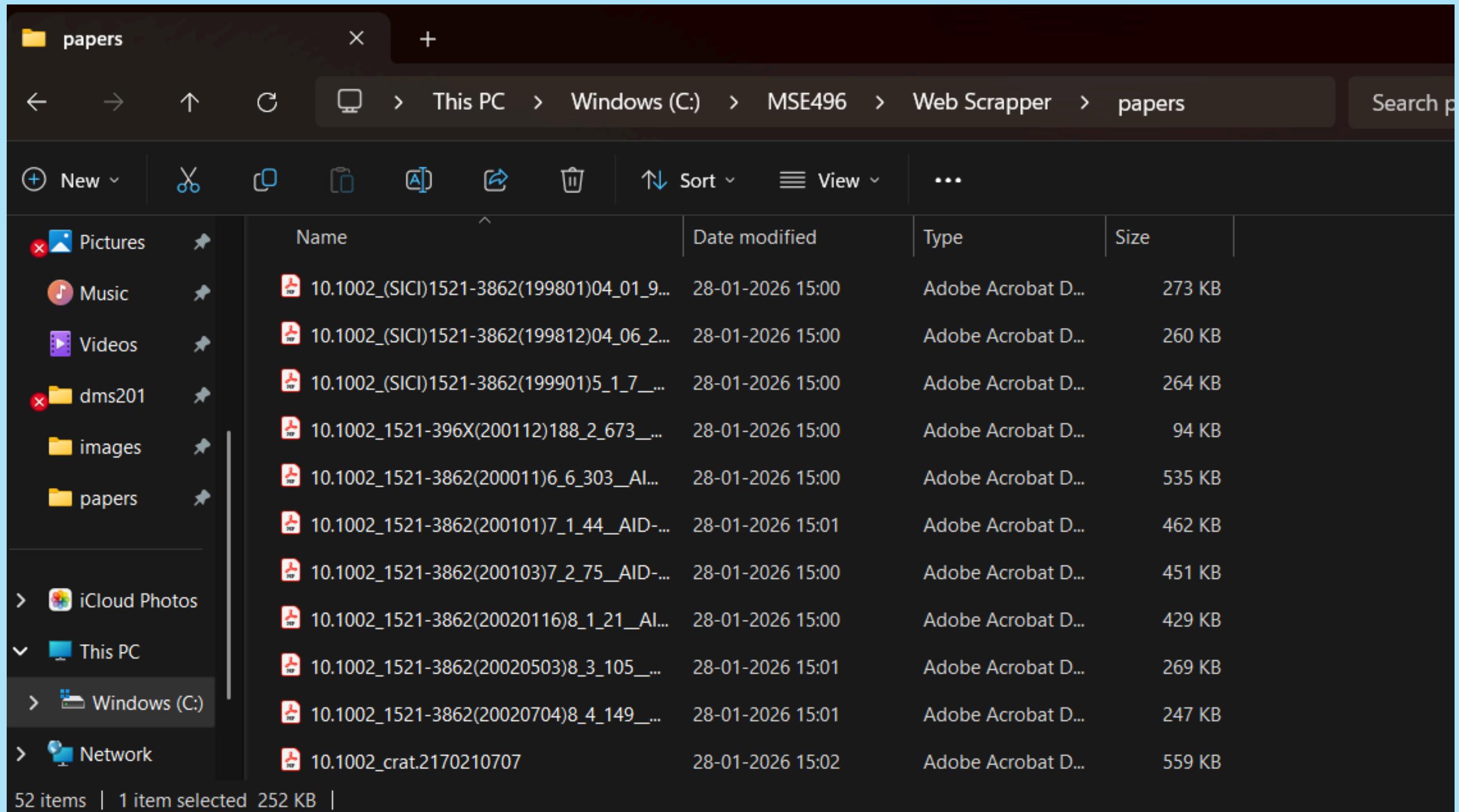
```
from scrape import get_responses
from doi2pdf import save2pdf, check_availability
from tqdm import tqdm
import time

references, processes = get_responses()

for reference in tqdm(references[:100]):
    doi = reference["reference_doi"]
    save2pdf(doi)

    ...
```

SOME RESULTS



A screenshot of a Windows File Explorer window titled "papers". The window shows a list of 52 items, all of which are Adobe Acrobat PDF files. The files are organized by name, date modified, type, and size. The file names follow a specific naming convention, such as "10.1002_(SICI)1521-3862(199801)04_01_9..." and "10.1002_crat.2170210707". The file sizes range from 94 KB to 559 KB. The "View" tab is selected in the toolbar.

Name	Date modified	Type	Size
10.1002_(SICI)1521-3862(199801)04_01_9...	28-01-2026 15:00	Adobe Acrobat D...	273 KB
10.1002_(SICI)1521-3862(199812)04_06_2...	28-01-2026 15:00	Adobe Acrobat D...	260 KB
10.1002_(SICI)1521-3862(199901)5_1_7...	28-01-2026 15:00	Adobe Acrobat D...	264 KB
10.1002_1521-396X(200112)188_2_673...	28-01-2026 15:00	Adobe Acrobat D...	94 KB
10.1002_1521-3862(200011)6_6_303_AI...	28-01-2026 15:00	Adobe Acrobat D...	535 KB
10.1002_1521-3862(200101)7_1_44_AID...	28-01-2026 15:01	Adobe Acrobat D...	462 KB
10.1002_1521-3862(200103)7_2_75_AID...	28-01-2026 15:00	Adobe Acrobat D...	451 KB
10.1002_1521-3862(20020116)8_1_21_AI...	28-01-2026 15:00	Adobe Acrobat D...	429 KB
10.1002_1521-3862(20020503)8_3_105...	28-01-2026 15:01	Adobe Acrobat D...	269 KB
10.1002_1521-3862(20020704)8_4_149...	28-01-2026 15:01	Adobe Acrobat D...	247 KB
10.1002_crat.2170210707	28-01-2026 15:02	Adobe Acrobat D...	559 KB

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Thank you