



DANISH MEAT
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Detektion og håndtering af fremmedlegemer

Lars Bager Christensen

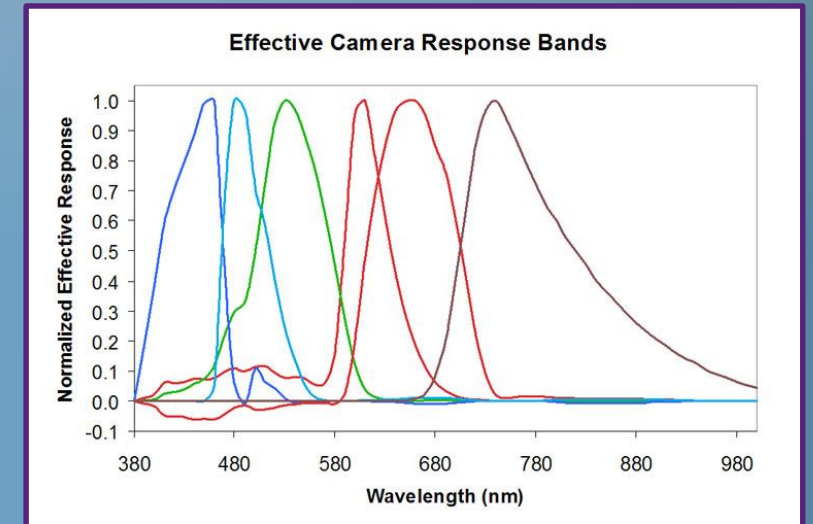
Agenda

Nyt om:

- Røntgendetektorer
- Multi-spectral vision
- Håndtering

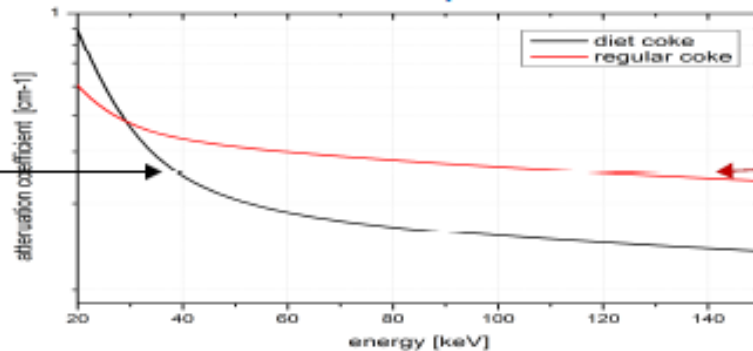


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X-Ray spectra between Coca's are different

Materials Spectrum

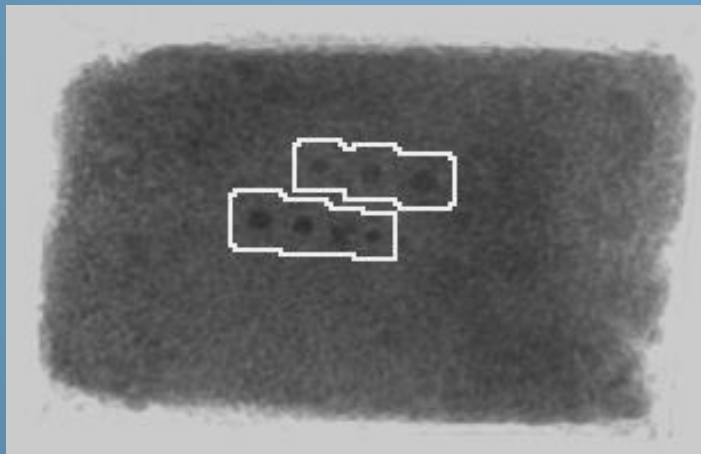
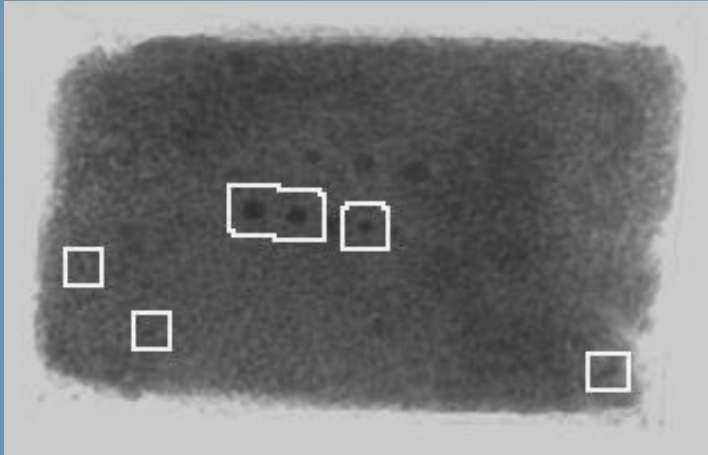


To- energi røntgen

Ishida Cases



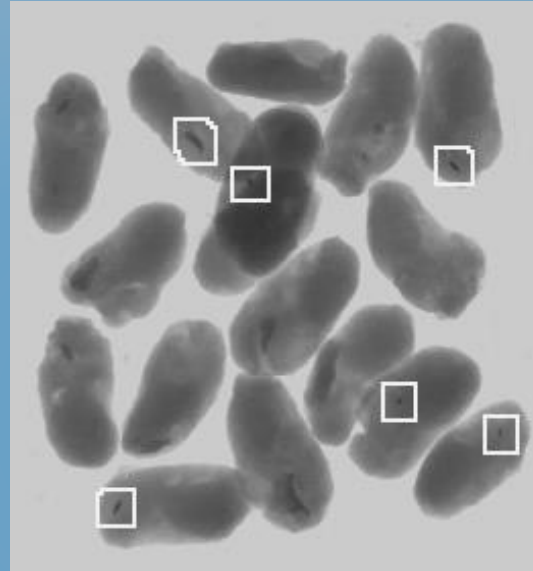
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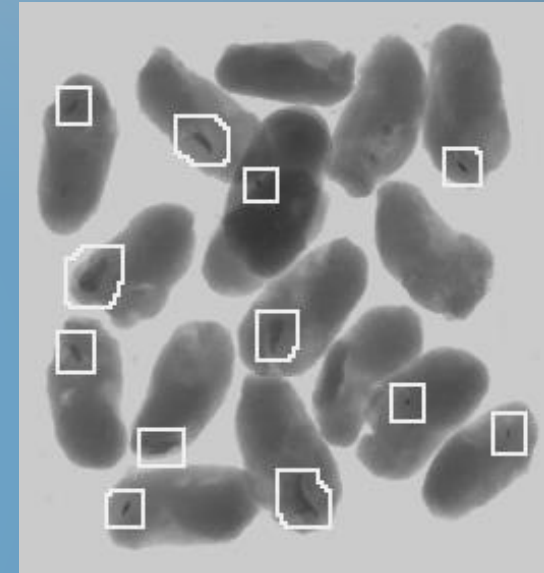
Frozen IQF rice

(SUS: T=0.1mmx D=8,6,4 & 2mm)

(AL: T=1mm x D=8,6,4 & 2mm)



6 pcs. (35%)



12 pcs. (70%)

17 pcs of Natural raw oyster with
thinner shell piece

Forbedret detektion med to-energi

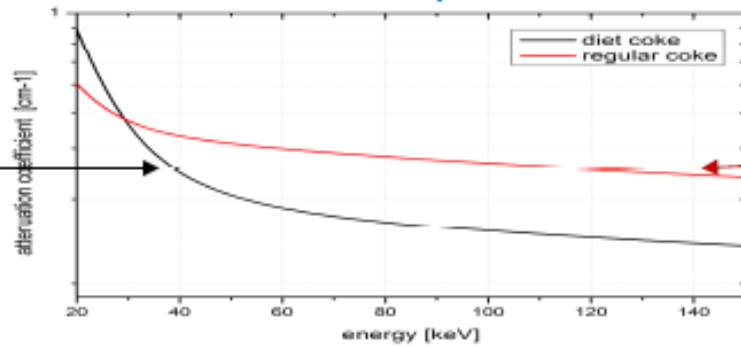
Multi spektral røntgen



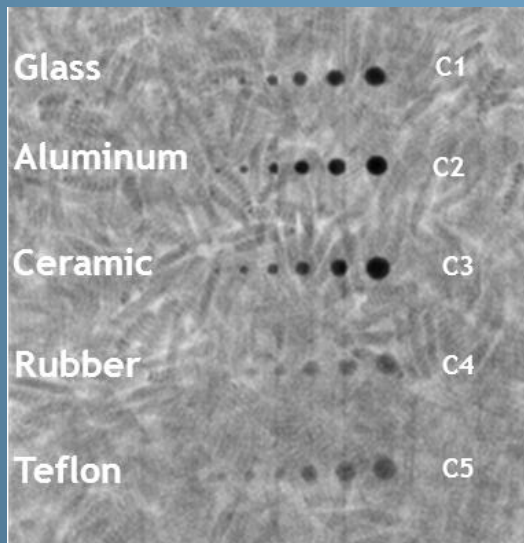
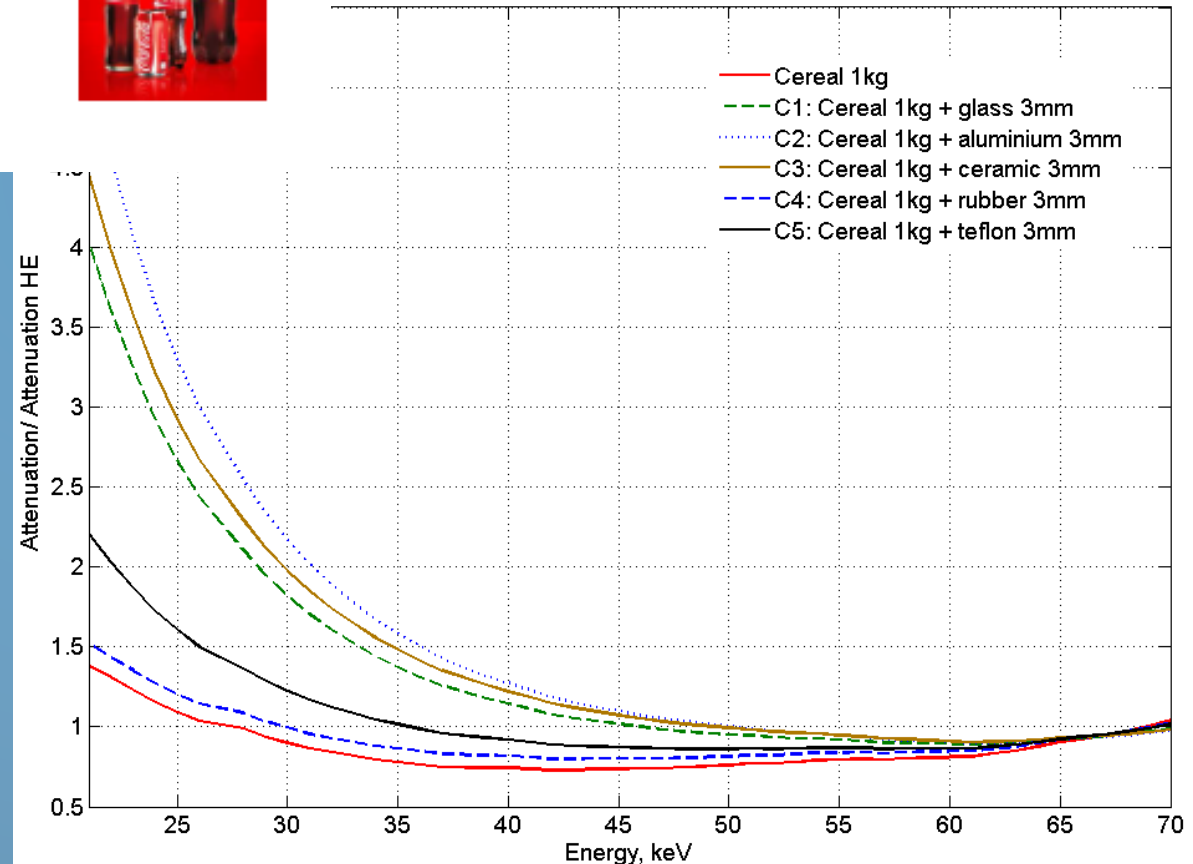
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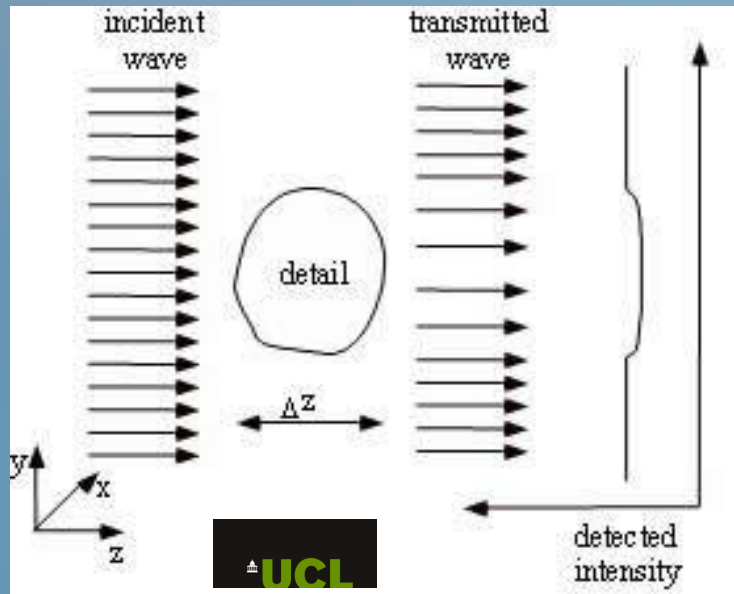
Attenuation / Attenuation HE



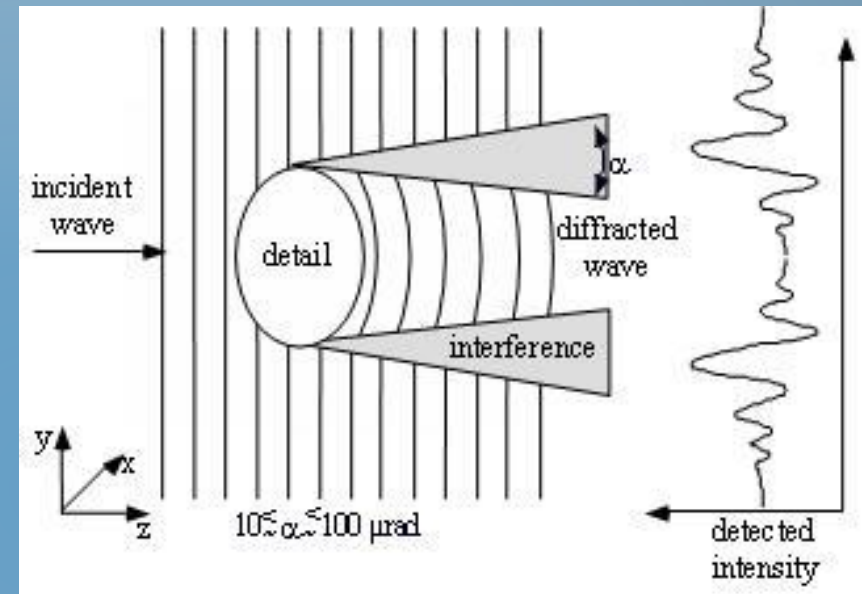
Transmission af røntgen



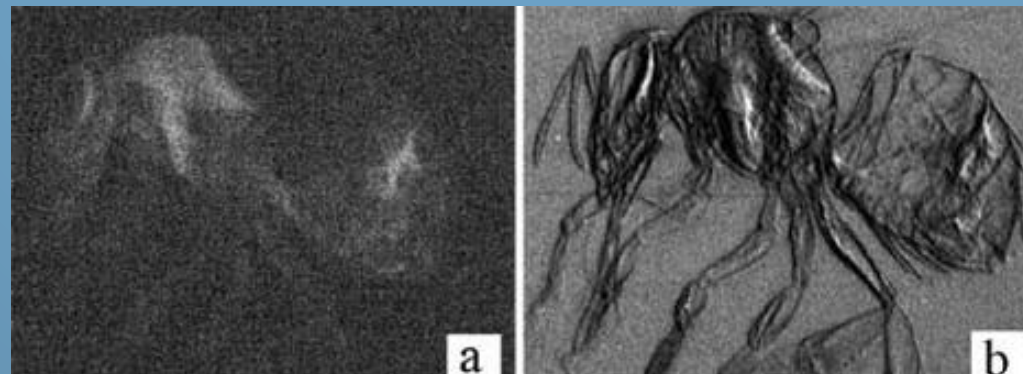
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Attenuation



Delay & diffraction



Forsøg i NEXIM på TUM



Blødt plast (lilla), hårdt plast (lyserød), glas (blå), træ (grøn), hveps (rød), metal ringe (orange), sten (cyan) og gummi (gul).

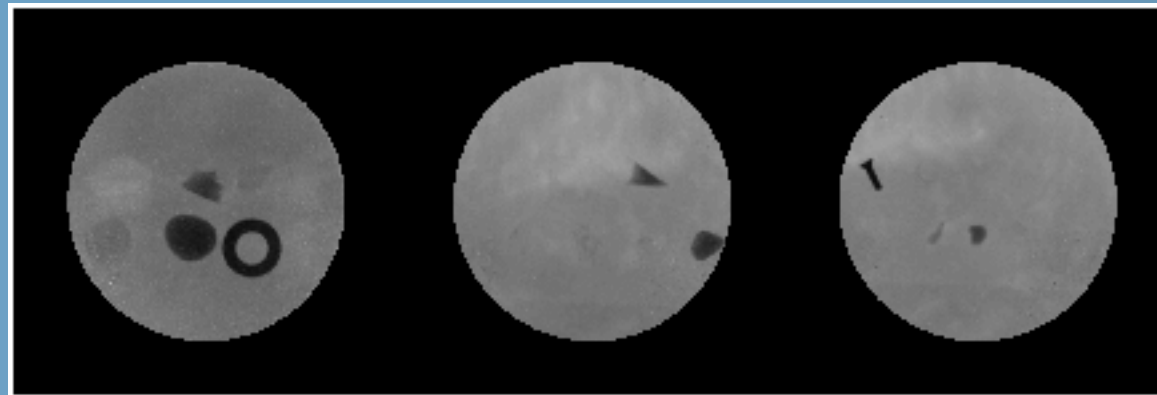
Røntgenskanning



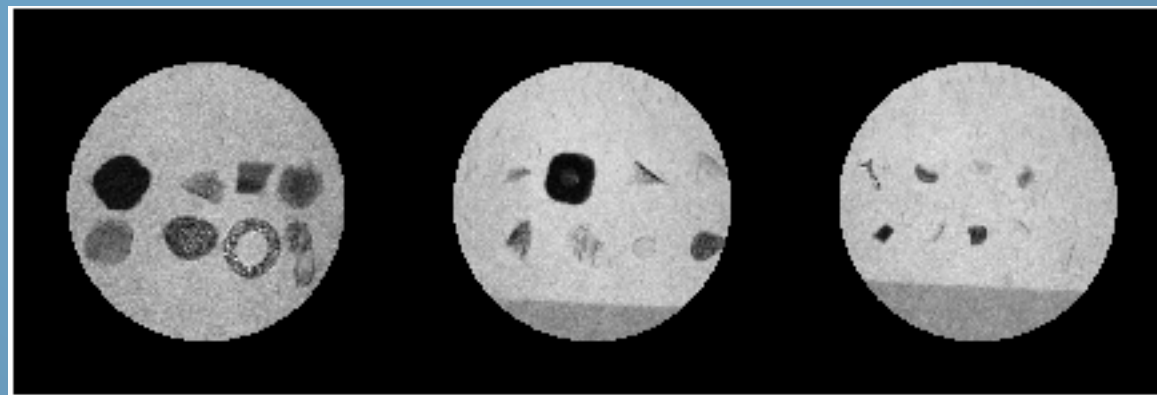
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Absorption



Dark-Field



Vision detektion

multispektral

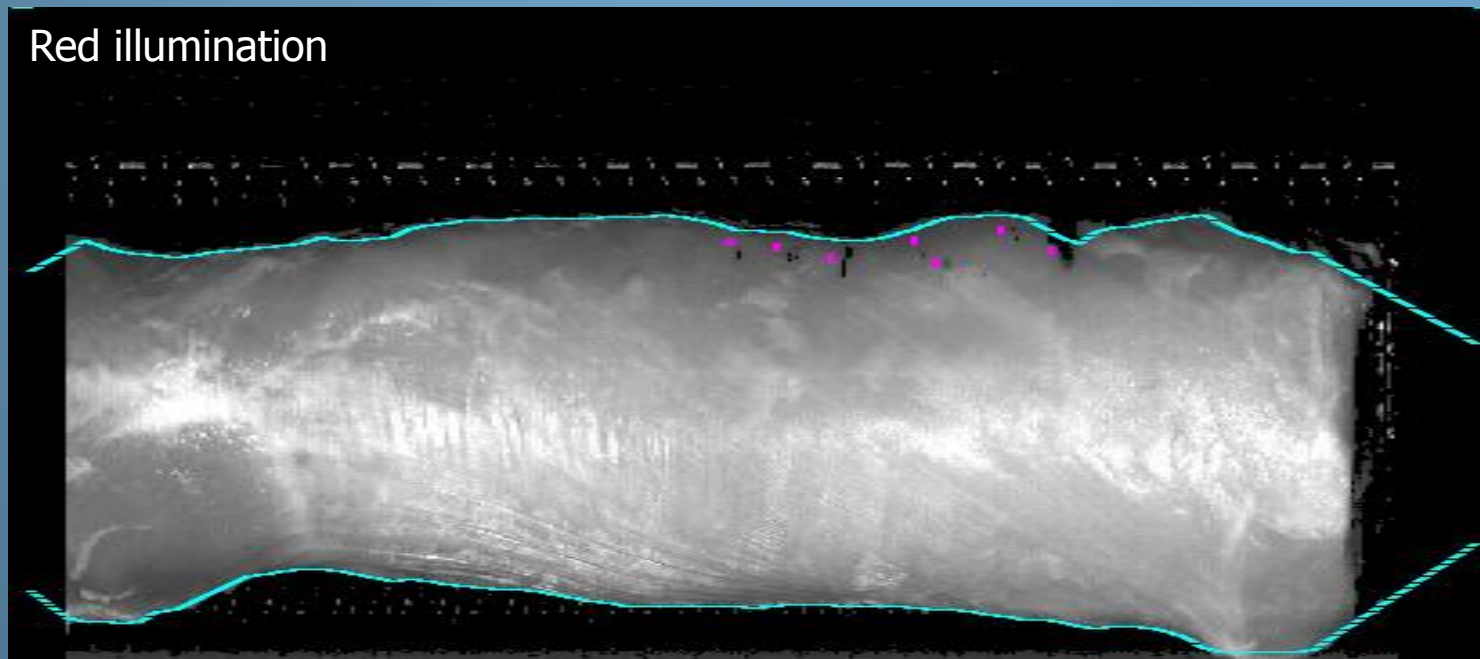


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Udnytter diskrete
bølgelængder til at
forbedre kontrast

“vanskelige” materialer

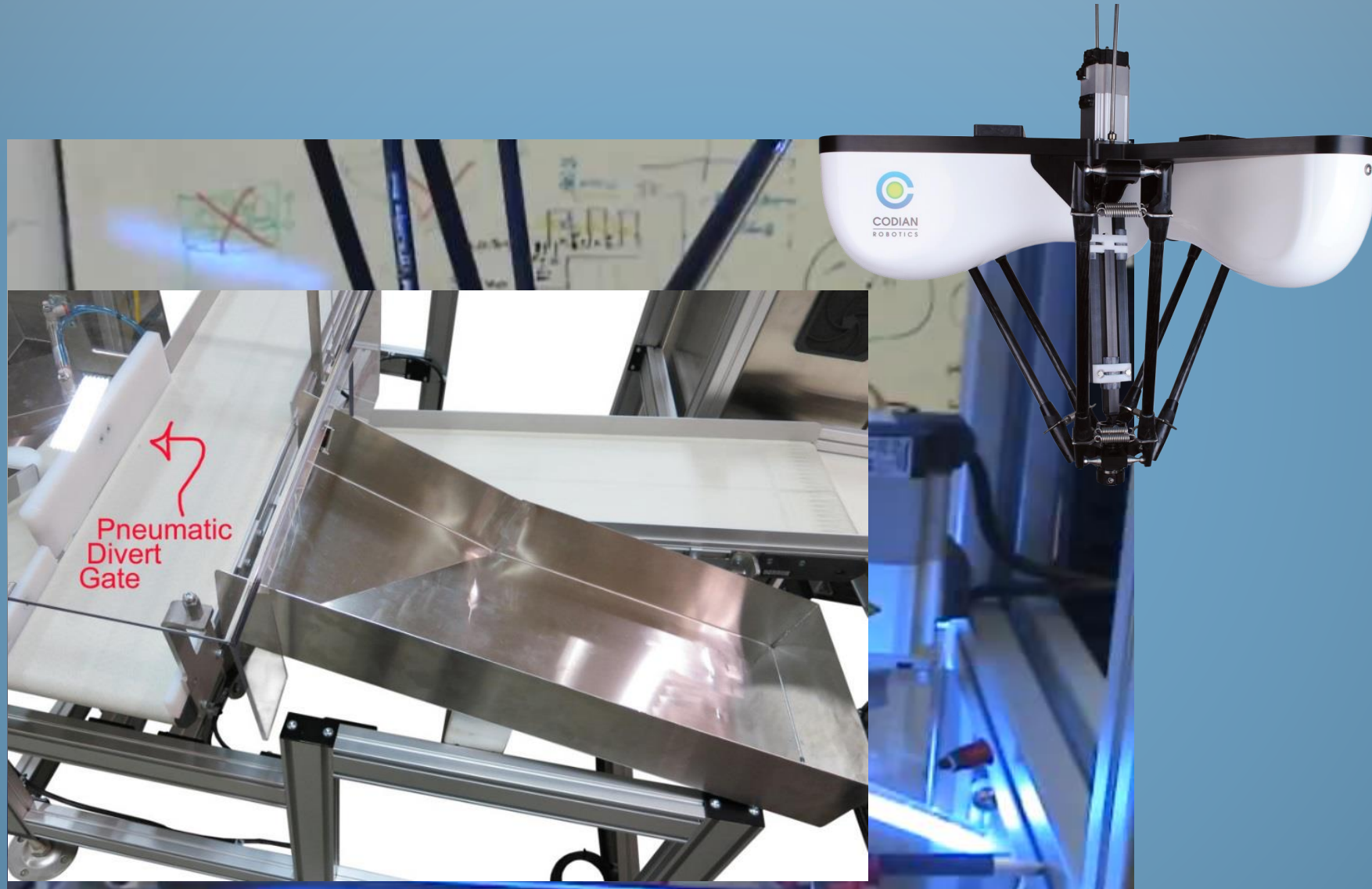
- Wrapping film
- Produktionsmaterialer
- Værktøjsmaterialer
- Nylon strips
- Væsker



Håndtering af fund



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Konklusion



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- Tunge og ledende/magnetiske materialer er "nemmest"
- Multispektral røntgen vil forbedre detektionssikkerheden
- Plastfolie kan pt. kun findes udenpå (Vision)
- Fiberholdige materialer: Dark field røntgen
(i fremtiden, hvis behovet er stort nok)
- Håndtering er afhængig af frekvens

Diskussionsoplæg

Detektion og håndtering af fremmedlegemer



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- Den største udfordring?
 - Detektion
 - Håndtering
 - Undgå forekomst
- Demonstrationsprojekt?
- Deltager i EU-projekt?
- Nye tekniske løsninger?
- Deltage med udstyr?
- Deltager i F&U-projekt?