Production of high temperature superconducting Thallium-based thin-film coatings

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Pellet shows big grains and XRD pattern shows the phase (1223) is almost pure. * is Tl(1212) phase.
Substrates

1. Silver Substrate

Silver rod is being used to roll to get substrate (80, 100, 130 micro meter)
Annealing at high temperature to stabilize the substrate for high temperature treatment of the thin films

2. SrTiO3

Commercial substrates
Deposition of silver layer (20nm)
Methods for depositing the thin film Precursors

- Fast
- Cheap
- Scalable
- Feasible
- Better

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Thallium is volatile (717°C) and Toxic in nature
Thin Film on the silver substrate

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Thin Film on the silver substrate

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Samples Thin film on the SrTiO3 substrate
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Other activities

- Ph.D Course work
- Italian language course

Secondment at CERN
- if any volatile materials are released in vacuum (TI-1223 contains Tl, Ba, Sr, Ca)
- SEY( With Carbon Coating)
- XPS
Thank you