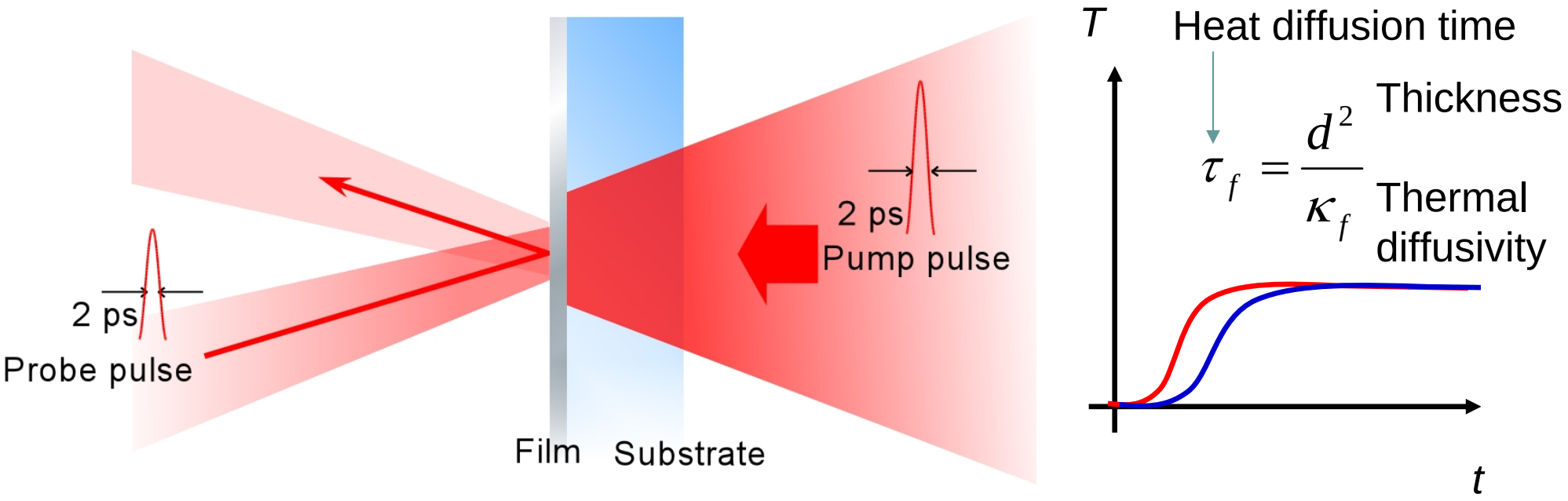
Thermal Analysis System for Thin Films

NanoTR and PicoTR, thermal analysis system have been developed successfully which are the world's first instrument can measure thermophysical properties of thin films.

- Thin film：
  Metal, ceramics, organic films, etc.
- Thickness of film：
  NanoTR／300nm～10μm
  PicoTR／10nm～1μm
- Measurement items:
  - Thermal diffusivity
  - Thermal effusivity
  - Thermal conductivity
  - Boundary thermal resistance of layers

NanoTR

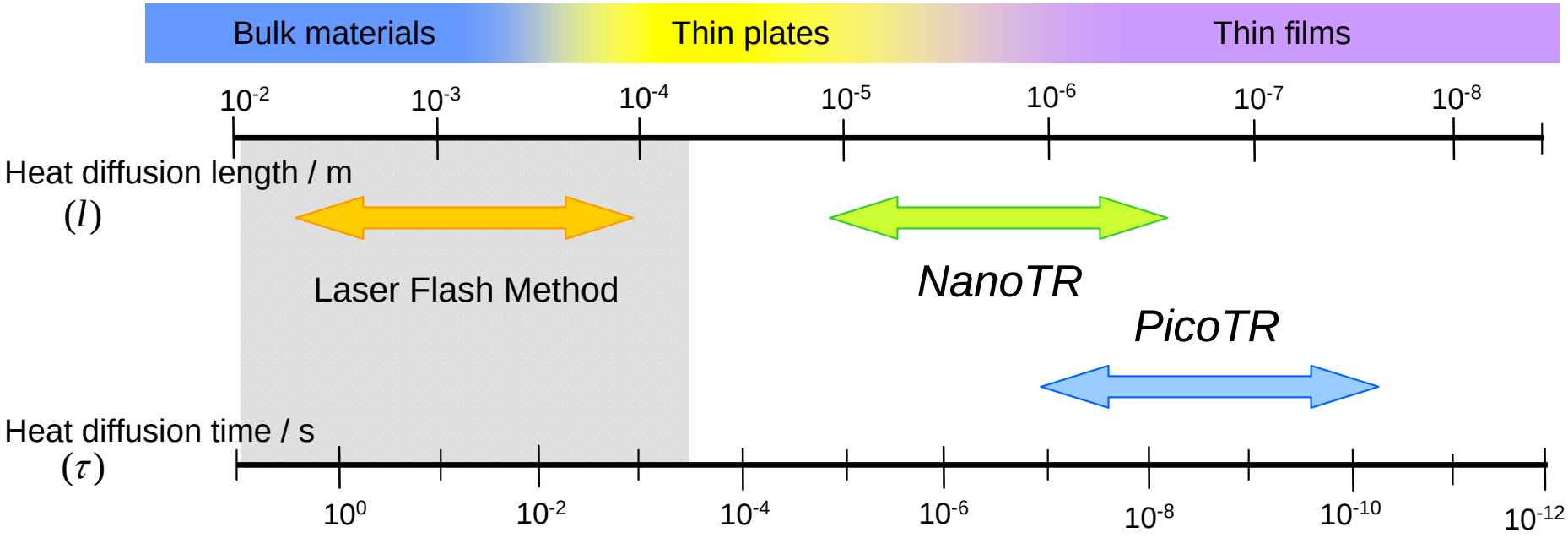
Pulsed Light Heating Thermoreflectance Method



Same configuration as conventional laser flash method for bulk materials.

Measurement Range of NanoTR / PicoTR

Pulsed light heating thermoreflectance methods cover thermal diffusivity measurements from plates to thin films.



Application of NanoTR / PicoTR

NanoTR and PicoTR ensure traceability
to the National Standard in calibration process.

- Semiconductor memory / ReRAM, PRAM
- Power Devices
- LEDs
- Flat panel displays
- Thermoelectric conversion element
- Phase-change thin films
- Resin films
- Magnetic thin films
- Interlayer dielectric films / Low-k
- Gate iusulator films / High-k etc.