

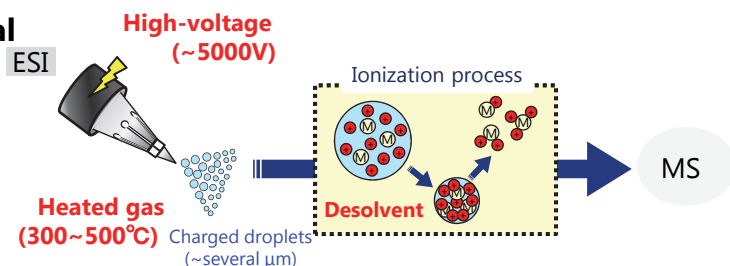
# Structural Analysis of Organometallic Complexes by Nano ESI-MS

It is the NanoESI method that allows to analyze dissociative compounds like organometallic complexes. This poster shows the principles and analytical examples of NanoESI-MS.

## Principles and strong points in Nano ESI-MS

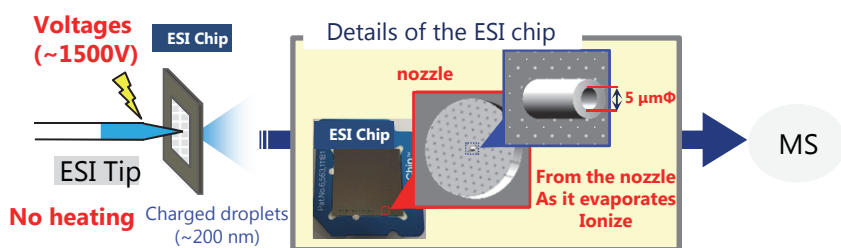
### • Electrospray ionization (ESI) : Conventional

When spraying is performed by applying pressure with a high voltage, charged fine droplets are generated from the tip of the capillary. Ionization of this droplet occurs by desolvation using a heated gas and is introduced into MS.



### • Nano ESI **New!!!!**

Ionization is performed on the same principle as conventional ESI, but the liquid droplet size is very small because it is sprayed so as to evaporate from an extremely fine nozzle of 5 μmΦ, and the ionization efficiency is high compared with conventional ESI.



### [Strong points]

- Softer ionization compared to ESI can detect unstable metal complexes!
- High-sensitivity  
The structure of the trace components can be analyzed!
- There is no carryover.  
⇒ Even high-concentration metal-containing solutions can be measured!

## Nano ESI-MS analytical cases

### 1. Metal complex

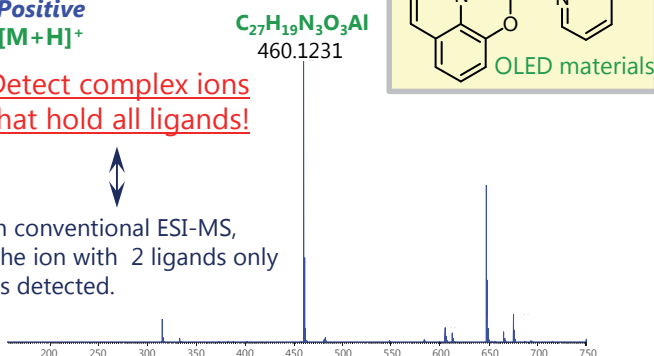
Tris(8-quinolinolato)aluminum

Formula:  $C_{27}H_{18}N_3O_3Al$   
Exact mass: 459.1164

Positive  
[M+H]<sup>+</sup>

Detect complex ions that hold all ligands!

In conventional ESI-MS, The ion with 2 ligands only is detected.



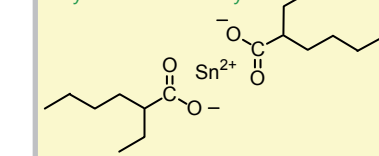
### 2. Organometallic salt

Tin(II) 2-ethylhexanoate

Formula:  $C_{16}H_{30}O_4Sn$   
Exact mass: 406.1166

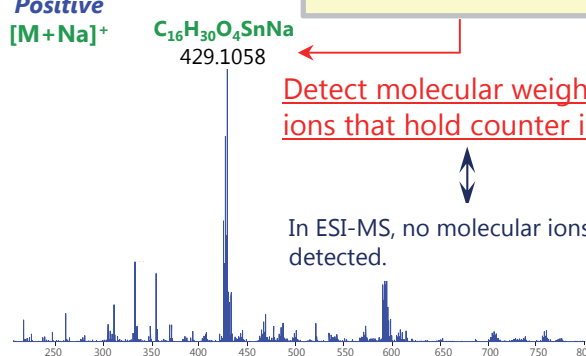
Positive  
[M+Na]<sup>+</sup>

Polymerization catalyst



Detect molecular weight ions that hold counter ions!!

In ESI-MS, no molecular ions are detected.



**NanoESI-MS measurements are very useful for structural analysis of unstable organometallic compounds.**