- **Theorem 2.13:** ($c(\cdot,\cdot)$ ✱ wrt $\|\cdot\|_\Lambda$ & $\Lambda_c = \Lambda$)

Ass.: 1) Standard assumptions (3)

2) $a(v,v) \geq 0 \ \forall v \in X$ and $a(v,v) > 0 \ \forall v \neq 0$

$|a(u,v)| \leq (a(u,u))^{1/2} (a(v,v))^{1/2} \ \forall u,v \in X$

3) $c(\cdot,\cdot) : \Lambda \times \Lambda \to \mathbb{R}^1$:

- $c(\mu,\nu) = c(\nu,\mu) \ \forall \mu,\nu \in \Lambda$
- $c(\mu,\mu) \geq 0 \ \forall \mu \in \Lambda$
- $|c(\mu,\nu)| \leq |\mu|_c |\nu|_c \ \forall \mu,\nu \in \Lambda$
- continuous (= ✱), i.e. $\exists\, \gamma_2 = \text{const} > 0$:

  $|c(\mu,\nu)| \leq \gamma_2 \|\mu\|_\Lambda \|\nu\|_\Lambda \ \forall \mu,\nu \in \Lambda$

St.: Then (37)-(38) defines an isomorphism $L : X \times \Lambda \longmapsto X^* \times \Lambda^*$ (& $\exists!$) and $L^{-1} : X^* \times \Lambda^* \longmapsto X \times \Lambda$ is uniformly bounded for all $t \in [0,1]$.

Proof: see [Numerische Festkörpermechanik] Satz 2.11

or [Braess] pp. 132-137.