

**ПЕРЕСТРОЙКА** (perestroika): reconstruction, change-over, improvement, realignment, reformation.

**Comment.** “Virtual plane curves” make sense; I don’t know their G-FT theory and its relationship with the u case.

[CD]:  $J^+ - J^- = n = \#\text{double points}$ , and

$$J^-(\Gamma) = 1 - \sum_{\tilde{C}} \text{ind}_{\tilde{\Gamma}}^2(\tilde{C})\chi(\tilde{C}),$$

where  $\tilde{C}$  runs over regions in the oriented smoothing  $\tilde{\Gamma}$  of  $\Gamma$  and  $\chi$  denotes Euler characteristic.

Arnold’s normalization.  $St(K_0) = 0$ ,  $J^+(K_0) = 0$ ,  $J^-(K_0) = -1$ ; for  $i > 0$ ,  $St(K_i) = i - 1$ ,  $J^+(K_i) = -2(i - 1)$ ,  $J^-(K_i) = -3(i - 1)$ ; from [?]:

	$a(\times)$	$a(\bowtie)$	$a(\bowtie)$							...
St	1	0	0	0	0	1	2	3	...	...
$J^+$	0	2	0	0	0	-2	-4	-6	...	...
$J^-$	0	0	-2	-1	0	-3	-6	-9	...	...

## References.

[Ar] V.I. Arnold, *Topological Invariants of Plane Curves and Caustics*, American Mathematical Society, 1994.

[Ca] Carter: *Classifying Immersed Curves*.

[CD] Chmutov, Duzhin: *Explicit Formulas for Arnold’s Generic Curve Invariants*.

[FT] R. Fenn and P. Taylor, *Introducing Doodles*, in *Topology of Low-Dimensional Manifolds, Proceedings of the Second Sussex Conference, 1977*, Springer 1979.

[Go1] Goryunov: *Finite Order Invariants of Framed Knots in a Solid Torus and in Arnold’s  $J^+$ -Theory of Plane Curves*.

[Go2] Goryunov: *Plane Curves, Wave Fronts and Legendrian Knots*.

[Go3] Goryunov: *Vassiliev Type Invariants in Arnold’s  $J^+$ -Theory of Plane Curves without Direct Self-Tangencies*.

[Gu] Gulde: *Classification of Plane Curves*.

[Kh1] M. Khovanov, *Doodle Groups*, Trans. Amer. Math. Soc. **349-6** (1997) 2297–2315.

[Kh2] Khovanov: *Some Remarks on Tabachnikov’s Invariants of Plane Curves*.

[Me1] Merkov: *Finite-Order Invariants of Ornaments*.

[Me2] Merkov: *Vassiliev Invariants Classify Flat Braids*.

[Me3] A.B. Merkov, *Segment-Arrow Diagrams and Invariants of Ornaments*, Sbornik: Mathematics **191-11** (2000) 1635–1666.

[Me4] A.B. Merkov, *Vassiliev Invariants Classify Plane Curves and Doodles*, Sbornik: Mathematics **194-9** (2003) 1301–1330.

[Ng] L. Ng: *Plane Curves and Contact Geometry*.

[No1] T. Nowik: *Order One Invariants of Plane Curves*.

[No2] T. Nowik: *Order One Invariants of Spherical Curves*.

[Oc] Ochiai: *Invariants of Plane Curves and Polyak-Viro Type Formulas for Vassiliev Invariants*.

[Oz] Ozawa: *Finite Order Topological Invariants of Plane Curves*.

[Po] Polyak: *Invariants of Curves and Fronts Via Gauss Diagrams*.

[Se] Selwat: *The First Order Semilocal Vassiliev Invariants of Plane Curves*.

[Sh] Shumakovich: *Explicit Formulas for Strangeness* (Russian).

[Ta] S. Tabachnikov, *Invariants of Smooth Triple Point Free Plane Curves*, Jour. of Knot Theory and its Ramifications **5-4** (1996) 531–552.

[Va1] V.A. Vassiliev, *On Finite Order Invariants of Triple Point Free Plane Curves*, 1999 preprint, [arXiv:1407.7227](https://arxiv.org/abs/1407.7227).

[Va2] V.A. Vassiliev, *Invariants of Ornaments*, Adv. in Soviet Math. **21** (1994) 225–262.

[Vi1] Viro: *Generic Immersions of Circle to Surfaces and Complex Topology of Real Algebraic Curves*.