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Riemann surfaces with a holomorphic 1-form



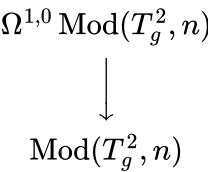
flat 2-conifold?



polygons in  $\mathbb{R}^2$  with parallel side pairings

| Riemann surface $X$ with a holomorphic 1-form $\omega$ | orientable 2-manifold $X$ with a Riemannian metric $ \omega $ on $X \setminus \{x_1, \dots, x_n\}$ of constant curvature 0 | polygons in $\mathbb{R}^2$ with side pairings |
|--------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|
| zeros of $\omega$ of degree $d$                        | conical point with angle $2\pi(d+1)$                                                                                       |                                               |
|                                                        | side                                                                                                                       |                                               |
| $\ \omega\ ^2 = i \int_X \omega \wedge \bar{\omega}$   | area                                                                                                                       |                                               |
|                                                        | geodesic flow                                                                                                              |                                               |
| $\Re(\omega)$                                          |                                                                                                                            |                                               |
| $\Im(\omega)$                                          |                                                                                                                            |                                               |
| $\int_{\gamma} \omega$                                 |                                                                                                                            |                                               |
| $\gamma \mapsto \int_{\gamma} \omega$                  |                                                                                                                            |                                               |

Moduli



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And it has 16 siblings.

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