I | [1] *D. Shechtman et al., Metallic phase with long range orientational order…, Phys. Rev. Lett.,* ***53****, p. 1951 (1984)*

II | [2] *Peter J. Lu and Paul J. Steinhardt, Decagonal and Quasi-Crystalline Tilings in Medieval Islamic Architecture, Science* ***315****, p. 1106 - 1110 (23. Feb. 2007)*

II | [3] *P. Cromwell, The Search for Quasi-Periodicity in Islamic 5-fold Ornaments, Math. Int., Vol. 31,* ***1****, p. 36 (2009)*

I - III | [4] *Roger Penrose, Pentaplexity. A class of non-periodic tilings of the plane, Math. Intelligencer,* ***2****, p. 32 (1979)*

I, IV | [5] *P. Gummelt, Penrose Tilings as Coverings of Congruent Decagons, Geometriae Dedicata,* ***62****, p. 1 – 17 (1996)*

I, V | [6] *Uli Gaenshirt and M. Willsch, …Quasiperiodic Succession, Philos. Mag., Vol. 87,* ***18 – 21****, p. 3055 – 3065 (2007)*

Wichtige Symbole nach Kapiteln I - V *geordnet / Basic Symbols ordered by chapters* I - V

I	$\tau = 1{,}6180339\ldots$	*Verhältnis in fünfzähligen Drehsymmetrien* [1]	*Ratio in fivefold rotational symmetries* [1]
II	G_R, G_H, G_B	*Historische Girih-Schablonen* [2][3]	*Historical girih tiles* [2][3]
II-V	G_Z^σ	*Quasiperiodisches Girih-Flechtwerk*	*Quasiperiodical girih wickerwork*
II, III	R_r, R_s	*Quasiperiodische Penrose-Rhomben* [4]	*Quasiperiodical Penrose rhombs* [4]
IV	P^M	*Gummelt-Dekagon* [5] *mit Teilmengen* M	*Gummelt decagon* [5] *with subsets* M
V	Q^σ	*Quasizelle* [6] *mit Doppelskalen* ${}^\pm a, {}^\pm b, {}^\pm c, {}^\pm d, {}^\pm e$	*Quasi-cell* [6] *with twin scales* ${}^\pm a, {}^\pm b, {}^\pm c, {}^\pm d, {}^\pm e$

Symbols in alphabetical order / The numbers I - V *in the left column refer to the chapters*

	$a, a_\alpha, a_\beta, a_\gamma$	*Values of* $\rightarrow {}^\pm a$*:* $0 < a < 1$, $0 < a_\alpha < \tau^{-2}$, $\tau^{-2} < a_\beta < \tau^{-1}$, $\tau^{-1} < a_\gamma < 1$, $\rightarrow \tau, L, S$.
V	${}^\pm a$	*Vertical synchronous twin scale of* $\rightarrow Q_Z^\sigma$. ${}^-a = (0,1)$, ${}^+a = (0,1)$, $a({}^-a) = a({}^+a)$. $\rightarrow a$.
V	a, b, c, d, e	*Values of the twin scales* ${}^\pm a, {}^\pm b, {}^\pm c, {}^\pm d, {}^\pm e$. *The rotations are similar to* $\rightarrow r_a, r_b, r_c, r_d, r_e$.
V	$b'' = 1 - a$	*Conversion of* $\rightarrow a$ *into the value* b'' *of* $\rightarrow h_2(Q_Z^\sigma)$. *The scale* ${}^-b''$ *is parallel to* $\rightarrow {}^+a$.
II, V	G_R, G_H, G_B	*Historical girih tiles* [2][3]. *The indices* R, H, B *stand for rhombus, hexagon and bowtie.*
	G^{5R}	*Quasiperiodically arranged girih pentagons generated by five starlike ordered* $\rightarrow G_R$ *- tiles.*
II-V	G_Z^σ	*Quasiperiodical girih wickerwork in the space of the quasi-cell* $\rightarrow Q_Z^\sigma$ *with center* $\rightarrow Z$.
IV,V	h_1, h_2, h_3, h_4, h_5	*Transformations of* $\rightarrow P_Z^M$ *resp.* $\rightarrow Q_Z^\sigma$ *represented by* $\rightarrow \overrightarrow{ZV}$. *The inverse of* h_1 *is* h_1^{-1}.
IV	$K_3(K_3'), K_4'', K_5'''$	*Girih-knots with correlations to the subsets* $\rightarrow M_3(M_3'), M_4'', M_5'''$ *with according indices.*
	L, S	*Intervals between parallel* $\rightarrow r$ *-lines. Scale unit:* $L + S = 1$. *Golden ratio:* $\rightarrow \tau = L / S$.
IV	M_3, M_4	*Subsets of* $\rightarrow P^M$. *Each* P^M *- decagon contains two* M_3 *- subsets and one* M_4 *- subset.* M_3 *- "rockets" have three acute* 72°*- angles,* M_4 *- "halfstars" have four acute* 72°*- angles.*
IV	M_5, M_5'''	*The star-shaped* M_5 *- subset is generated by a covering of minimum three* M_4 *- subsets.*
	$M_3(b_\beta)$, $M_4(b_\alpha)$	*A* b_β *- value forces a covered* M_3 *- subset, a* b_α *- value forces a covered* M_4 *- subset.* $\rightarrow a$.
	${}^+p_a$, ${}^-p_a$	*A* p_a *- value lines intersect the* $\rightarrow {}^\pm a$ *- twin scale rectangular at both* $\rightarrow a$ *- value positions.*
IV	$P^M, P^M_{Z\ (\text{center}\ \rightarrow Z)}$	*Gummelt-decagons* [5]. *The* P^M *-overlap rules require covered subsets* $\rightarrow M_3, M_4, M_5$.
V	$Q^\sigma, Q^\sigma_{Z\ (\text{center}\ \rightarrow Z)}$	*Decagonal quasi-cells* [6]. *The values* $\rightarrow a, b, c, d, e$ *controle a flawless covering process.*
V	q_a, q_b, q_c, q_d, q_e	q *- lines are* $\rightarrow r$ *- lines of higher order. The distance of* q *to its neighbour* r *- lines is* $\rightarrow L$.
III	r_a, r_b, r_c, r_d, r_e	*Ammann lines of the* $\rightarrow Q_Z^\sigma$ *- cell. The* r_a *- lines have a horizontal orientation.* r_b, r_c, r_d, r_e *are counterclockwise rotated relative to* r_a. *The rotation angles are: 36°, 72°, 108°, 144°.*
II, III	R_r, R_s	*Fat and skinny rhomb tiles of the rhomb Penrose tiling* [4] *with acute angles 72° resp. 36°.*
I	τ (golden ratio)	$1/\tau = \tau/(1+\tau) \Rightarrow \tau = (1+\sqrt{5})/2 = 1.618\ldots$, $\tau^{-1} = L = 0.618\ldots$, $\tau^{-2} = S = 0.381\ldots$.
V	T_{el}	*Elementary trapezoid area of the quasi-cell* $\rightarrow Q_Z^\sigma$. *The corners of* T_{el} *are* T_1, T_2, T_3, T_4.
	$Z, V, \overrightarrow{ZV}$	*The directed line-segment* $\overrightarrow{ZV}$ *connects the center* Z *and the upper corner* V *of* $\rightarrow P_Z^M$.
	$\overrightarrow{Z'V'} = h_1^{-1}(\overrightarrow{ZV})$	*The transformation* h_1^{-1} *applied to the directed line-segment* $\overrightarrow{ZV}$ *gives* $\overrightarrow{Z'V'}$. h_1^{-1} *is a clockwise rotation about* V $(\rightarrow Z, V, \overrightarrow{ZV})$ *with the rotation angle* $ZVZ' = 72°$.
IV,V	$\overrightarrow{Z''V''} = h_2(\overrightarrow{ZV})$	h_2 *is a clockwise 36°-rotation about* Z *followed by a translation with a vector* $z = \overrightarrow{ZZ''}$.
IV,V	$\overrightarrow{Z'''V'''} = h_3(\overrightarrow{ZV})$	h_3 *is a clockwise 72°-rotation about the symmetry center of* $\rightarrow M_5'''$. $\rightarrow h_1, h_2, h_3, h_4, h_5$.