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STATE OF STUDIES OF THE PROCESS OF FINE DIAMOND TURNING ON OPTICAL SURFACES

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Abstract: *The industry associated with the processing of optical components undergoes continuous development and improvement of equipment used. There is a process of intense creation of new high-performance machines and equipment for process control with feedback between them. Finishing processes are important and inevitable part of the manufacturing process in optics. In this paper, there are examined methods of processing of optical surfaces by fine diamond turning. There are considered as processing of conventional optics and processing of complex optical surfaces.*

Key words: *optics, optical elements, process, diamond turning.*

1. (- 3000, - 200, - 180), (, ,) [1].

2.

100 mm

0,5 2 mm

[2].

0.04 μm .

$R_z 0.1 \mu\text{m}$

$R_z 0.05 \mu\text{m}$ [2].

[2]:

().



.1.

[3].

CNC

CNC

()

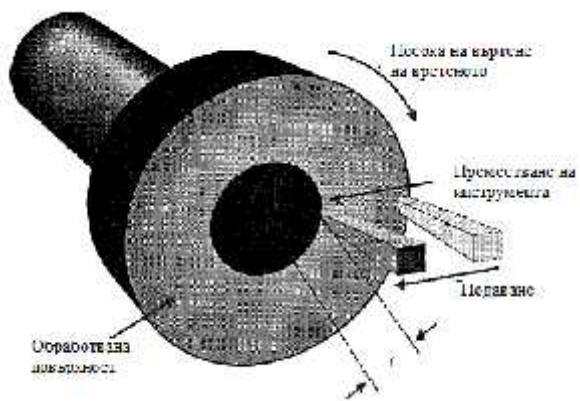
[4].

2.1

2.1.1.

.2.

[4].



[4].

2.1.2.

[4].

.2.

[4]

1.

[4]

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. 3.

„Nanotech 250UPL v2“ [5]

- 1-
- 2-
- 3-
- 4-

2.1.4.

[4].

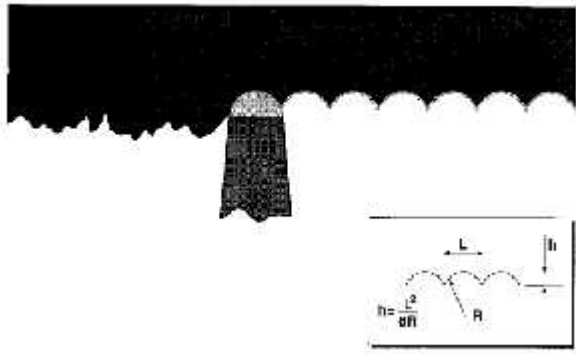
[4].

2.1.3.

.4.

$$h = \frac{f^2}{8R} \quad (1)$$

h
 mm μm .
 f
 mm
 R
 mm [4].

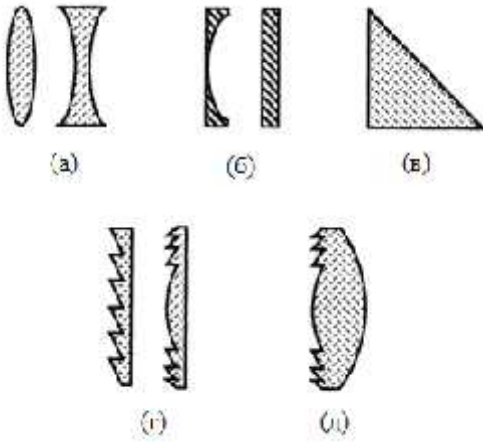


.4.

3.

[6]:

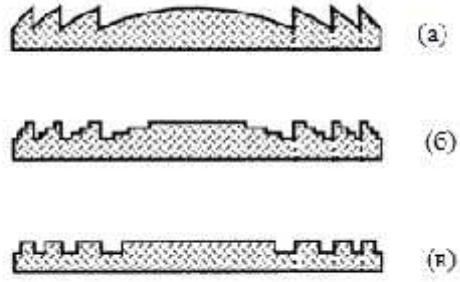
.5



.5.

() ; () ; ()
 ()
 ()

.6



.6.

()
 ()
 ()

4.

4.1.

2.

: Saurav Goel,
XichunLuo, PaulComley . [7]

6H-SiC
1 m/s
(Moore Nanotech 350 UPL),

(pH 7)

Ra= 9.2nm, -

SiC.

(SiC)

SiC

SiC

(Ra)
20nm,

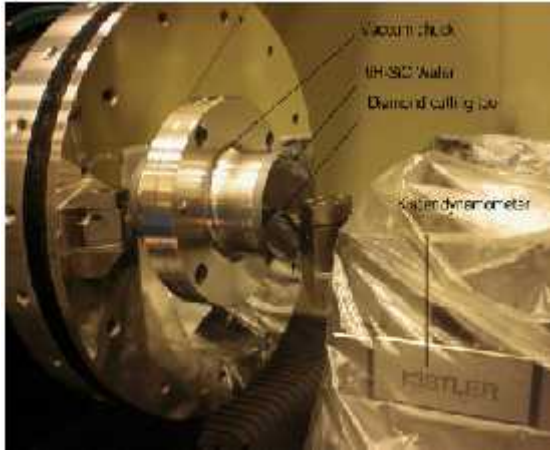
.7

(Moore Nanotech 350 UPL).

- 50nm,
0.034 nm.

(R)	2000	μm
	57.4	nm
(D)	50	mm
(V)	1	m/s
(f)	0.61	μm/rev
6H-SiC(d)	70	nm
(N)	382	RPM
		Ph 7

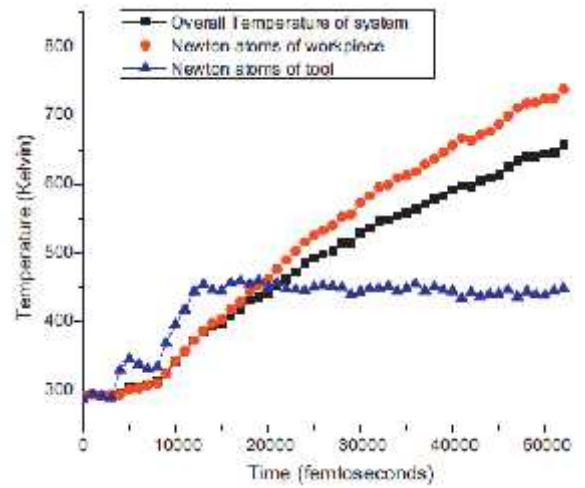
6H-SiC



.7.

4.2.

: Saurav Goel, Xichun
Luo, Robert L. Reuben, Hongmin
Pen[8].



.8.

4.3.

: D.L. Decker, D.J. Grandjean
Michael Bennett [9].

(CaF₂), (Ge), (MgF₂),
(SrF₂), (KCl),
(GaAs).

5.

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