

N 35-205

Turnvordynamik
und
Gastheorie
1913 II

Thuring

W 35-205

$$\chi_c = \frac{3}{4\pi N \sigma^2}$$

Reçu de Prisenille & Co.

$$S = 9 \cdot 10^{-5}$$

$$\left\{ \begin{array}{l} 2_4 = 1.7 \cdot 10^{-5} \text{ cm} \\ 2_5 = 1.7 \cdot 10^{-5} \text{ cm} \end{array} \right.$$

$$C = 18.4 \cdot 10^4$$

$$Z_{N_2} = 10.10^{-5} \text{ cm}$$

Durchschnitt f. N , σ^2 Teil. (Wartung & Reue
an der) $N \frac{4\pi}{3} \left(\frac{\sigma^2}{2} \right)^{3/2} = N \frac{\pi \sigma^3}{6}$

$$N \frac{4\pi}{3} \left(\frac{\sigma}{2} \right)^3 = N \frac{\pi \sigma^3}{6} e^{-\epsilon} e^{-\epsilon_2} e^{-\epsilon_2}$$

20 162-1220

$\frac{d}{dt} \left(\frac{1}{\rho} \right) = - \frac{1}{\rho^2} \frac{d\rho}{dt}$

$$S_{\text{gas}} = N m$$

$$S_{\text{gins}} = \frac{Nm}{4\pi\sigma^3}$$

$$2 \frac{g_{\text{gas}}}{g_{\text{flue}}} = \frac{3}{4\pi N_{\text{vol}}} \cdot x \cdot \frac{N_{\text{H}_2\text{O}}}{6} = \frac{x}{8} \cdot 6$$

$$\sigma = \frac{8}{x} \cdot 2 \frac{S_{\text{pas}}}{S_{\text{flin}}} \quad \text{für } N_2 \quad S_{\text{pas}} = 14.9 \cdot 10^{-5}$$

$$S_{\text{fl}} = 1$$

$$\sigma = \frac{8}{x} 10^{-5} \cdot 14.9 \cdot 10^{-5} = \frac{1}{x} 10^{-9}$$

$$N = \frac{3x^2}{4\pi \cdot 10^{-14} \cdot 10^{-5}} = 2.5 x^2 \cdot 10^{18}$$

$$2.5 \cdot 10^{18} < N < 2.5 \cdot 10^{20}$$

$$\underline{\underline{N_{\text{Plank}} = 2.7 \cdot 10^{19}}}$$

$$10^{18} < N < 10^{20} \quad \text{für } 20 \sim 200$$

$$1 \text{ Mol } \sim 2.5 \cdot 10^{23} \quad \sim 2.23 \cdot 10^{23} \text{ cm}^3$$

$$\frac{\text{Mol} \cdot 20}{m} = 2.5 \cdot 2.2 \cdot 10^{22} \cdot 4^2 = 5.6 x^2 \cdot 10^{22}$$

$$\sigma = \frac{1}{x} 10^{-7} \quad N = 2.5 x^2 \cdot 10^{18}$$

$$N \sigma = 2.5 x^2 \cdot 10^{18} \cdot \frac{1}{x} \cdot 10^{-7} = 2.5 x \cdot 10^{11} = 2.5 \text{ cm}^2$$

$$N \sigma = 2.5 x^2 \cdot 10^{18} \cdot \frac{1}{x} \cdot 10^{-7} = 2.5 x \cdot 10^{11} = 10^{12} \text{ cm} = 10^7 \text{ km}$$

$$= 1000 \cdot \frac{2}{\pi} \text{ Erdradius} \neq 25 \text{ Atomkernradius}$$

Maxwells Theorie der inneren Reibung.
(innere friction power)

$$dN = \int f(u, v, w) du dv dw = \int f dw$$

$$dN = \int f(u, v, w) du dv dw = \int f dw$$

$$dN = \int f(u, v, w) du dv dw = \int f dw$$

$$f(u, v, w) = \frac{1}{h^3} Q(u, v, w)$$

$$Q(u, v, w) = \frac{1}{h^3} Q(u, v, w)$$

$$\bar{Q} = \frac{\int dw f(u, v, w)}{N} = \frac{1}{N} \int dw f(u, v, w)$$

$$N \bar{Q} = \int dw f(u, v, w)$$

$$\frac{d(N \bar{Q})}{dt} = \int dw \frac{df(u, v, w)}{dt}$$

$\text{c.p. } u = \bar{u} + \bar{u} \quad v = \bar{v} + \bar{v} \quad w = \bar{w} + \bar{w}$
 $\bar{u}, \bar{v}, \bar{w} \text{ "PARALL" } \quad \bar{u} + \bar{v} + \bar{w} = 0 \text{ "}$

$$\bar{u}Q = (\bar{u} + \bar{u})Q = \bar{u}Q + \bar{u}Q$$

$$\frac{\partial Q}{\partial u} = \frac{\partial Q}{\partial \bar{u}} \quad \frac{\partial Q}{\partial u} = \frac{\partial Q}{\partial \bar{u}} = \frac{\partial Q}{\partial \bar{u}}$$

$\text{c.p. } \text{c.p. } \text{c.p. } \text{c.p. } \text{c.p.}$

$$\frac{\partial Q}{\partial t} + Q \frac{\partial Q}{\partial t} = \frac{\partial Q}{\partial t} - \left[\frac{\partial}{\partial x} (S(\bar{u}Q + \bar{v}Q)) + \right.$$

$$\left. \frac{\partial}{\partial y} (S(\bar{v}Q + \bar{w}Q)) + \frac{\partial}{\partial z} \right] + S \left[X \frac{\partial Q}{\partial u} + Y \frac{\partial Q}{\partial v} + Z \right]$$

$\frac{\partial Q}{\partial t} \text{ c.p. } \text{c.p. } \text{c.p. } \text{c.p.}$

$$\frac{\partial Q}{\partial t} - Q \left\{ \frac{\partial S \bar{u}}{\partial x} + \frac{\partial S \bar{v}}{\partial y} + \frac{\partial S \bar{w}}{\partial z} \right\} = - \frac{\partial}{\partial x} (S \bar{u} Q) - \frac{\partial}{\partial y} (S \bar{v} Q)$$

$$- \frac{\partial}{\partial z} (S \bar{w} Q) - \left[\frac{\partial}{\partial x} S \bar{u} Q + \frac{\partial}{\partial y} S \bar{v} Q + \frac{\partial}{\partial z} S \bar{w} Q \right]$$

$$+ S \left[X \frac{\partial Q}{\partial u} + Y \frac{\partial Q}{\partial v} + Z \frac{\partial Q}{\partial w} \right] + \frac{\partial Q}{\partial t}$$

$$- Q \frac{\partial S \bar{u}}{\partial x} - S \bar{u} \frac{\partial Q}{\partial x}$$

$$\text{c.p. } \frac{\partial Q}{\partial t} + \bar{u} \frac{\partial Q}{\partial x} + \bar{v} \frac{\partial Q}{\partial y} + \bar{w} \frac{\partial Q}{\partial z} = \frac{\partial Q}{\partial t} \text{ a Gr.}$$

$$S \frac{\partial Q}{\partial t} = S \frac{\partial Q}{\partial t} - \frac{\partial}{\partial x} (S \bar{u} Q) - \frac{\partial}{\partial y} (S \bar{v} Q) - \frac{\partial}{\partial z} (S \bar{w} Q)$$

$$+ S \left[X \frac{\partial Q}{\partial u} + Y \frac{\partial Q}{\partial v} + Z \frac{\partial Q}{\partial w} \right]$$

$\text{c.p. } Q - \text{c.p. } \text{c.p. } \text{c.p. } \text{c.p.}$

$$Q = \bar{u} \quad \frac{\partial \bar{u}}{\partial t} = 0 \quad \bar{u}Q = \bar{u}Q = \bar{u}(\bar{u} + \bar{u})$$

$$\bar{u}Q = \bar{u}Q \quad \bar{w}Q = \bar{w}Q = \bar{u}Q + \bar{u}Q$$

$$S \frac{\partial \bar{u}}{\partial t} = S X - \frac{\partial}{\partial x} (S \bar{u}^2) - \frac{\partial}{\partial y} (S \bar{u} \bar{v}) - \frac{\partial}{\partial z} (S \bar{u} \bar{w})$$

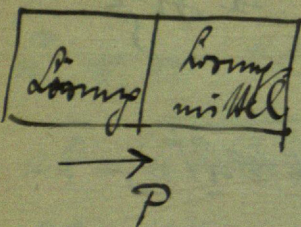
$$S \frac{\partial \bar{v}}{\partial t} = S Y - \frac{\partial}{\partial x} (S \bar{v} \bar{u}) - \frac{\partial}{\partial y} (S \bar{v}^2) - \frac{\partial}{\partial z} (S \bar{v} \bar{w})$$

$$S \frac{\partial \bar{w}}{\partial t} = S Z - \frac{\partial}{\partial x} (S \bar{w} \bar{u}) - \frac{\partial}{\partial y} (S \bar{w} \bar{v}) - \frac{\partial}{\partial z} (S \bar{w}^2)$$

$$\frac{\partial S}{\partial t} + \frac{\partial}{\partial x} S \bar{u} + \frac{\partial}{\partial y} S \bar{v} + \frac{\partial}{\partial z} S \bar{w} = 0$$

a a PARALL b m y p e n n s = 0 " a a
 a l s / - inkomputible Flirigkeit

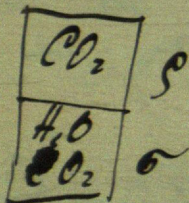
24. II.



Continued Druck

Pepper 28 1/2 lb 2 1/2.

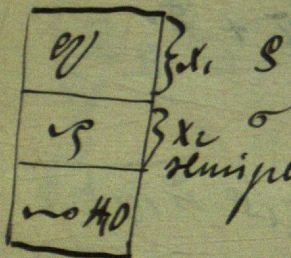
Don't Hoff's p. Ableitung dafür:



gesetz von Henry $S = k \sigma$

of the Interior

Бжегъ Огъ и тенъ еъ


$$\rho = k\sigma$$
$$dQ = \frac{\partial Q}{\partial T} dT + \frac{\partial Q}{\partial x_1} dx_1 + \dots$$
$$A dx_1 + \dots + A dx_n$$
$$d \ln \phi \sim \frac{d \ln \phi_i}{d \ln \phi} = \frac{d \ln \phi_i}{d \ln \phi_i}$$

$$J_1 = \frac{2}{\mu} R_H T \frac{1}{\sigma} = \frac{2}{\mu} R_H T \rho$$

$$d_2 = P = f(\sigma) \quad d_1 \text{ re or } l_1$$

$$M = g_1^T x_1 + \sigma_1 x_2 = \sigma (k_1 x_1 + x_2)$$

$$\frac{dK_1}{dK_2} = \frac{2}{K} R_H T \frac{d\phi}{dK_2} \quad \frac{dK_2}{dK_1} = f(\phi) \frac{d\phi}{dK_1}$$

$$\sigma = \frac{M}{kx_1 + kx_2} \quad \frac{\partial \sigma}{\partial x_1} = - \frac{Mk}{(kx_1 + kx_2)^2}$$

$$\frac{d\phi}{dt_2} = - \frac{h \, dt}{(h t_1 + t_2)^2} \quad \frac{d\phi}{dt_2} = \frac{d\phi}{dt_1}$$

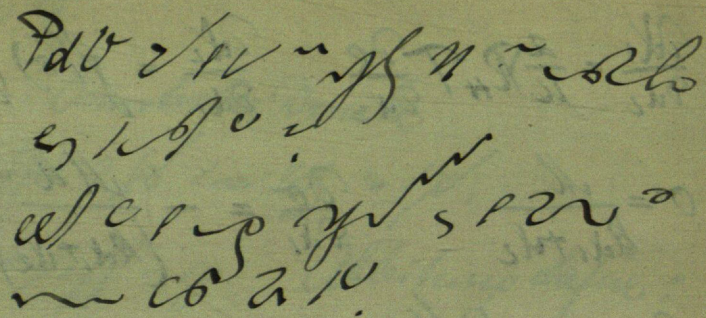
$$f'(\sigma) = \frac{2}{\mu} R_+ T \quad f(\sigma) = \frac{2}{\mu} R_+ T \sigma$$

$P = f(\sigma) = \frac{2}{\pi} R_* T_0$ Van't Hoff's Gesetz

$$QV = \int \frac{2}{\mu} R_H T = N_2 R_H T \quad \int = \mu \quad 19 \text{ Feb } 66 \text{ J.}$$

2000 Vanthoff p. 1. 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100. 101. 102. 103. 104. 105. 106. 107. 108. 109. 110. 111. 112. 113. 114. 115. 116. 117. 118. 119. 120. 121. 122. 123. 124. 125. 126. 127. 128. 129. 130. 131. 132. 133. 134. 135. 136. 137. 138. 139. 140. 141. 142. 143. 144. 145. 146. 147. 148. 149. 150. 151. 152. 153. 154. 155. 156. 157. 158. 159. 160. 161. 162. 163. 164. 165. 166. 167. 168. 169. 170. 171. 172. 173. 174. 175. 176. 177. 178. 179. 180. 181. 182. 183. 184. 185. 186. 187. 188. 189. 190. 191. 192. 193. 194. 195. 196. 197. 198. 199. 200. 201. 202. 203. 204. 205. 206. 207. 208. 209. 210. 211. 212. 213. 214. 215. 216. 217. 218. 219. 220. 221. 222. 223. 224. 225. 226. 227. 228. 229. 230. 231. 232. 233. 234. 235. 236. 237. 238. 239. 240. 241. 242. 243. 244. 245. 246. 247. 248. 249. 250. 251. 252. 253. 254. 255. 256. 257. 258. 259. 260. 261. 262. 263. 264. 265. 266. 267. 268. 269. 270. 271. 272. 273. 274. 275. 276. 277. 278. 279. 280. 281. 282. 283. 284. 285. 286. 287. 288. 289. 290. 291. 292. 293. 294. 295. 296. 297. 298. 299. 300. 301. 302. 303. 304. 305. 306. 307. 308. 309. 310. 311. 312. 313. 314. 315. 316. 317. 318. 319. 320. 321. 322. 323. 324. 325. 326. 327. 328. 329. 330. 331. 332. 333. 334. 335. 336. 337. 338. 339. 340. 341. 342. 343. 344. 345. 346. 347. 348. 349. 350. 351. 352. 353. 354. 355. 356. 357. 358. 359. 360. 361. 362. 363. 364. 365. 366. 367. 368. 369. 370. 371. 372. 373. 374. 375. 376. 377. 378. 379. 380. 381. 382. 383. 384. 385. 386. 387. 388. 389. 390. 391. 392. 393. 394. 395. 396. 397. 398. 399. 400. 401. 402. 403. 404. 405. 406. 407. 408. 409. 410. 411. 412. 413. 414. 415. 416. 417. 418. 419. 420. 421. 422. 423. 424. 425. 426. 427. 428. 429. 430. 431. 432. 433. 434. 435. 436. 437. 438. 439. 440. 441. 442. 443. 444. 445. 446. 447. 448. 449. 450. 451. 452. 453. 454. 455. 456. 457. 458. 459. 460. 461. 462. 463. 464. 465. 466. 467. 468. 469. 470. 471. 472. 473. 474. 475. 476. 477. 478. 479. 480. 481. 482. 483. 484. 485. 486. 487. 488. 489. 490. 491. 492. 493. 494. 495. 496. 497. 498. 499. 500. 501. 502. 503. 504. 505. 506. 507. 508. 509. 510. 511. 512. 513. 514. 515. 516. 517. 518. 519. 520. 521. 522. 523. 524. 525. 526. 527. 528. 529. 530. 531. 532. 533. 534. 535. 536. 537. 538. 539. 540. 541. 542. 543. 544. 545. 546. 547. 548. 549. 550. 551. 552. 553. 554. 555. 556. 557. 558. 559. 560. 561. 562. 563. 564. 565. 566. 567. 568. 569. 570. 571. 572. 573. 574. 575. 576. 577. 578. 579. 580. 581. 582. 583. 584. 585. 586. 587. 588. 589. 590. 591. 592. 593. 594. 595. 596. 597. 598. 599. 600. 601. 602. 603. 604. 605. 606. 607. 608. 609. 610. 611. 612. 613. 614. 615. 616. 617. 618. 619. 620. 621. 622. 623. 624. 625. 626. 627. 628. 629. 630. 631. 632. 633. 634. 635. 636. 637. 638. 639. 640. 641. 642. 643. 644. 645. 646. 647. 648. 649. 650. 651. 652. 653. 654. 655. 656. 657. 658. 659. 660. 661. 662. 663. 664. 665. 666. 667. 668. 669. 670. 671. 672. 673. 674. 675. 676. 677. 678. 679. 680. 681. 682. 683. 684. 685. 686. 687. 688. 689. 690. 691. 692. 693. 694. 695. 696. 697. 698. 699. 700. 701. 702. 703. 704. 705. 706. 707. 708. 709. 710. 711. 712. 713. 714. 715. 716. 717. 718. 719. 720. 721. 722. 723. 724. 725. 726. 727. 728. 729. 730. 731. 732. 733. 734. 735. 736. 737. 738. 739. 740. 741. 742. 743. 744. 745. 746. 747. 748. 749. 750. 751. 752. 753. 754. 755. 756. 757. 758. 759. 760. 761. 762. 763. 764. 765. 766. 767. 768. 769. 770. 771. 772. 773. 774. 775. 776. 777. 778. 779. 780. 781. 782. 783. 784. 785. 786. 787. 788. 789. 790. 791. 792. 793. 794. 795. 796. 797. 798. 799. 800. 801. 802. 803. 804. 805. 806. 807. 808. 809. 810. 811. 812. 813. 814. 815. 816. 817. 818. 819. 820. 821. 822. 823. 824. 825. 826. 827. 828. 829. 830. 831. 832. 833. 834. 835. 836. 837. 8

Dampftiefe $\frac{1}{2}$ $\frac{1}{4}$ $\frac{1}{8}$ $\frac{1}{16}$ $\frac{1}{32}$ $\frac{1}{64}$ $\frac{1}{128}$ $\frac{1}{256}$
 Dampfformula $\frac{1}{2}$ $\frac{1}{4}$ $\frac{1}{8}$ $\frac{1}{16}$ $\frac{1}{32}$ $\frac{1}{64}$ $\frac{1}{128}$ $\frac{1}{256}$
 C $\frac{1}{2}$ $\frac{1}{4}$ $\frac{1}{8}$ $\frac{1}{16}$ $\frac{1}{32}$ $\frac{1}{64}$ $\frac{1}{128}$ $\frac{1}{256}$
 p $\frac{1}{2}$ $\frac{1}{4}$ $\frac{1}{8}$ $\frac{1}{16}$ $\frac{1}{32}$ $\frac{1}{64}$ $\frac{1}{128}$ $\frac{1}{256}$



Handwritten:
 2nd 2nd 2nd 2nd 2nd 2nd 2nd 2nd
 1st 2nd 3rd 4th 5th 6th 7th 8th

$\alpha \rho T$ $\kappa \epsilon \zeta$
 $\alpha \rho \delta$ $\kappa \epsilon \zeta \psi$

$$RT \ln p_2 = -RT \int_{p_2}^{p_0} \frac{dp}{p} = -RT \ln \frac{p_0}{p_2}$$

12/18/2012

$$p_0 v = p_0 v_0$$

$$a^2 PdV = dRT \log \frac{p_0}{p}$$

2^o De dx e dy - yz por.

$dB = \frac{1}{S}(dx + dy)$ and $\frac{1}{S} \frac{dy}{dx} = \frac{1}{S} \frac{dy}{dx}$
 $\frac{dy}{dx} = S \frac{dB}{dx}$

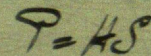
$$P = 8RT \log \frac{p_0}{p}$$

45. II

es ist nicht möglich, es ist nicht möglich.

$$\log \frac{p_0}{p} = \log \left(1 + \frac{p_0 - p}{p} \right) \approx \frac{p_0 - p}{p} \quad \text{in } C$$

$$P = SAT \frac{p_0 - p}{p}$$

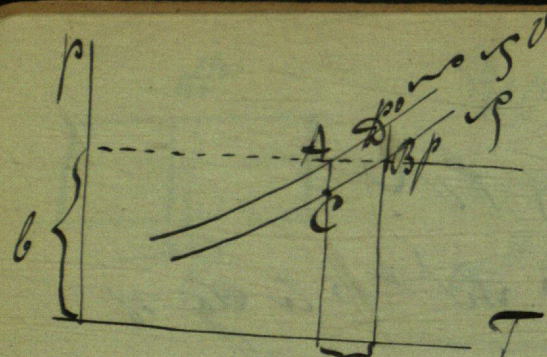


$$H = RT \frac{p_0 - p}{p}$$

$$\frac{RT}{p} = v = \frac{1}{5} \text{ mol}^2 \text{ g}$$

$$gH = p_0 - p$$

1. Durchschnitt $\int \frac{1}{x} dx = \ln x + C$
2. $\ln x$



A δC $\rightarrow$ ∞
 B $\rightarrow$ ∞

ΔT Gefrierpunkterhöhung

$$p_0 - p = \Delta p$$

$$AC = DB \text{ (auf } p \text{)} = \Delta p$$

$$DB = AB \frac{dp_0}{dT}$$

$$\Delta p = \Delta T \frac{dp_0}{dT}$$

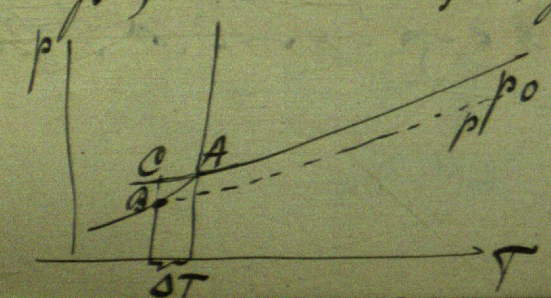
$$\kappa = \Delta T \frac{dp_0/dT - \sigma}{RT}$$

$$\kappa = \Delta T R \frac{1}{p} \frac{dp_0}{dT}$$

$$\frac{1}{p_0} \Delta p = \Delta T \frac{\kappa_0}{ART^2}$$

$$P = Q SRT \frac{p_0 - p}{p} = \frac{S \kappa_0}{AT} \Delta T$$

$\rightarrow$ κ $\rightarrow$ $\frac{1}{p} \frac{dp_0}{dT}$ Gefrierpunktsenkung



$$BC = \Delta p = p_C - p_B = (p_C - p_A) + (p_A - p_B)$$

$$p_A - p_C = \Delta T \frac{\kappa}{ART^2} p \text{ (auf } p \text{)}$$

$$p_A - p_B = \Delta T \frac{\sigma}{ART^2} p \text{ Sublimationswärme}$$

$$\Delta p = \frac{\sigma - \kappa}{ART^2} p \Delta T$$

$$P = SRT \frac{\sigma - \kappa}{ART^2} \Delta p = \frac{S(\sigma - \kappa)}{AT} \Delta T$$

$$P = \frac{S(\sigma - \kappa)}{AT} \Delta T \text{ (auf } p \text{) (ormet. Druck, Gefrierpunktsenkung)}$$

$$\sigma = N u \quad P = 2 R_H T N$$

$Q \sim 2 \sim$ Gefrierpunktsenkung $\rightarrow$ $\frac{1}{p} \frac{dp_0}{dT}$ Molwärme $\rightarrow$ $\frac{1}{p} \frac{dp_0}{dT}$

$\rightarrow$ κ $\rightarrow$ Mischung & Flüssigkeiten

A.O., C.A.O.H. (inotherme)
 1) 1g } $\rightarrow$ κ $\rightarrow$ Mischungswärme Q
 2) 2g } $\rightarrow$ κ $\rightarrow$ $\frac{1}{p} \frac{dp_0}{dT}$ $\rightarrow$ $\frac{1}{p} \frac{dp_0}{dT}$

$\Delta Q = -Q$ $\rightarrow$ $\frac{dQ}{dT}$ $\rightarrow$ $\frac{1}{p} \frac{dp_0}{dT}$
 $\rightarrow$ κ $\rightarrow$ $\frac{1}{p} \frac{dp_0}{dT}$ $\rightarrow$ $\frac{1}{p} \frac{dp_0}{dT}$ $\rightarrow$ $\frac{1}{p} \frac{dp_0}{dT}$

$$\int \Delta u = -Q + (1+x)c dT$$

$$\int \Delta u = c_1 dT + c_2 dT - (Q + \frac{\partial Q}{\partial T} dT)$$

$$\frac{\partial Q}{\partial T} = -(1+x)c + c_1 + x c_2$$

26. II 1913

Dampf		
(1)	(1)(2)	(2)
p	p+p	p
Mischung		

1) 1 Mol

$$\begin{aligned} \mu_{p^0} - \mu_{RT} \log \frac{p^0}{p} - \mu_{p^0} \\ = -2R_+ T \log \frac{p^0}{p} \end{aligned}$$

2) x Mol ~ 2 sec. μ_{p^0} u. ϵ in μ_{p^0} .

$$-x 2R_+ T \log \frac{p^0}{p}$$

1 u. 2. $\mu_{p^0} = \epsilon$ in μ_{p^0}

$$\Delta f = 2R_+ T \left\{ \log \frac{p^0}{p} + x \log \frac{p^0}{p} \right\}$$

$$f = u - ST \quad u = f + TS = f - T \frac{\partial f}{\partial T}$$

$$\Delta u = \Delta f - T \frac{\partial \Delta f}{\partial T}$$

$$\Delta f = T \Delta$$

$$\Delta f - T \frac{\partial \Delta f}{\partial T} = T \Delta - T \left(\Delta + T \frac{\partial \Delta}{\partial T} \right) = -T^2 \frac{\partial \Delta}{\partial T}$$

$$\begin{aligned} \Delta u = -2R_+ T^2 \frac{\partial}{\partial T} \left\{ \log \frac{p^0}{p} + x \log \frac{p^0}{p} \right\} = Q \\ \Delta u - Q = 0 \end{aligned}$$

$$\frac{\partial Q}{\partial x} = 2R_+ T^2 \frac{\partial}{\partial T} \log \frac{p^0}{p}$$

partielle

$$\begin{aligned} \rho \frac{dQ}{dt} = \rho \frac{\partial Q}{\partial t} - \left\{ \frac{\partial}{\partial x} (\rho \bar{u} Q) + \frac{\partial}{\partial y} (\rho \bar{v} Q) \right\} + \rho \left\{ x \frac{\partial Q}{\partial x} + \frac{\partial Q}{\partial y} \right\} \\ \text{c. d. f. } u = \bar{u} + \bar{u} \quad \bar{u} = 0 \quad \text{f. } Q = u \end{aligned}$$

$$\rho \frac{du}{dt} = \rho \bar{u} - \frac{\partial}{\partial x} (\rho \bar{u}^2) - \frac{\partial}{\partial y} (\rho \bar{v} \bar{u}) - \frac{\partial}{\partial y} (\rho \bar{u} \bar{v})$$

$$\frac{d}{dt} = \frac{\partial}{\partial t} + u \frac{\partial}{\partial x} + \dots$$

$$1 \text{ u. } 2 \text{ u. } \bar{u} = \bar{u} \text{ f. } x$$

$$\rho \frac{du}{dt} = \rho \bar{u} - \frac{\partial \bar{u}}{\partial x} - \frac{\partial \bar{v}}{\partial y} - \frac{\partial \bar{z}}{\partial z}$$

$$u \text{ u. } \bar{u} = \bar{u} \text{ f. } x \text{ u. } \bar{u} \text{ f. } x$$

$$\bar{u}_x = \rho \bar{u}^2 \quad \bar{u}_y = \rho \bar{u} \bar{v} \quad \bar{u}_z = \rho \bar{u} \bar{w}$$

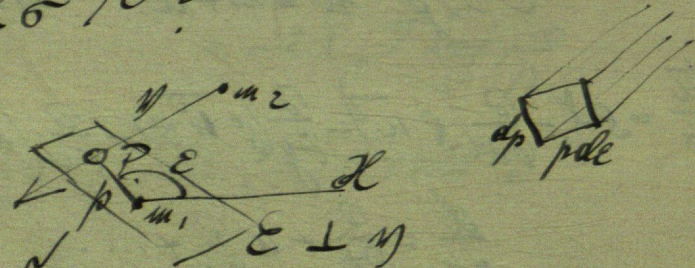
$u, v, w \text{ in } \Omega \text{ so } dy = dz = dx = 0$
 $x_u = y_v = z_w = \rho$

$\rho = g \bar{u}^2 = g \bar{v}^2 = g \bar{w}^2 = \frac{g \bar{c}^2}{3} = \frac{N_m \bar{c}^2}{3} \text{ Druckformel}$

$\text{so } \rho \text{ ist in } \frac{\partial Q}{\partial t} \text{ und } \rho \text{ ist in } \rho \text{ Co:}$

$\text{2. Term } \text{so } h_1, h_2 \text{ } dw_1, dw_2$
 $c_2 - c_1 = 0$

$\text{so } \rho \text{ ist in } \frac{\partial Q}{\partial t} \text{ und } \rho \text{ ist in } \rho \text{ Co:}$



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Röntgenstrahlung • Bremsstrahlung
 Röntgen • Elektronenfrequenzen

Verhältnis der Maxima der verschiedenen Gitterungen
 $100:200:300 = 1:2:3$

Verhältnis der Abstände der angeregten Elemente

$$d_{100} : d_{110} : d_{111} = 1 : \frac{1}{\sqrt{2}} : \frac{1}{\sqrt{3}} \quad \text{für den gewöhnl. Würfel}$$

Für den ^{Körper}zentrierten Würfel

$$d_{100} : d_{110} : d_{111} = 1 : \frac{\sqrt{2}}{2} : \frac{\sqrt{3}}{2} = \frac{1}{\sin \alpha_1} : \frac{1}{\sin \alpha_2} : \frac{1}{\sin \alpha_3}$$

Körper kommt nicht vor.

Für den Flächenzentrierten W.

$$d_1 : d_2 : d_3 = 1 : \sqrt{2} : \frac{\sqrt{3}}{2}$$

$$\text{NaCl} \begin{cases} 100 \\ 110 \\ 110 \end{cases}$$

$$\text{KCl} \begin{cases} 100 \\ 110 \\ 111 \end{cases}$$

$$\begin{matrix} \text{KBr} \\ \text{KJ} \end{matrix} \begin{cases} 100 \\ 110 \\ 111 \end{cases}$$

